Published in final edited form as:

J Aging Health. 2015 March ; 27(2): 355–376. doi:10.1177/0898264314551170.

Memory Banking: A Life Story Intervention for Aging Preparation and Mental Health Promotion

Faika Zanjani, PhD¹, Brian G. Downer, PhD², Amy F. Hosier, PhD³, and John D. Watkins, PhD³

¹University of Maryland, College Park, USA

²University of Texas Medical Branch, Gavelston, USA

³University of Kentucky, Lexington, USA

Abstract

Objective—The aim of this study is to examine the feasibility of Memory Banking (MB), a life story development intervention within the context of aging preparation. Individuals participate in MB to strategically document and share their life story, including mapping out future dreams, aspirations, plans, and decisions.

Method—Data (2010–2012) from eight MB workshops were examined to determine the impact of the intervention on mental health, social support, and quality of life.

Results—Recruitment efforts resulted in $n = 72$ participants, primarily female (72%), White/Caucasian (93%), average age of 70 years. Data indicated intervention effects showing improvements in depression ($p = .041$), mood disturbance ($p = .0067$), and cognitive performance ($p = .0045$).

Discussion—MB outcomes indicate that the intervention is promising and supports continued investigation and development in the area of life story development for aging preparation and improving late life mental health distress in a community setting. Future research is needed to examine the versatility and long-term effects of the MB intervention.

Keywords

aging; communication; brain exercise; legacy; life story; mental health; social support; intervention

Introduction

According to the World Health Organization (2012), the population aged 60 and above will more than triple from 600 million to 2 billion from 2000 until 2050; most increases are

© The Author(s) 2014

Reprints and permissions: sagepub.com/journalsPermissions.nav

Corresponding Author: Faika Zanjani, University of Maryland, 1242x SPH, College Park, MD 20742, USA. fzanjani@umd.edu.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

contributed to population growth in less developed countries and increases in deaths due to late life non-communicable chronic diseases instead of early life infections. Even with the average life span in the late 70s, interestingly as a society, we have a hard time identifying with our aging selves, in part due to denial, ageism, and anxiety (Fowler & Fischer, 2009; Lun, 2011). Furthermore, despite that most individuals will live to experience old age, there is almost no availability of psychosocial community programs targeting preparation for aging, to better situate individuals to age well, manage age-related distress and burden, and if needed, serve in late life roles such as being grandparents, caregivers, or care receivers. Consequently, a lack of preparation for late life can lead to increased distress about the aging process (Jonker, Comijs, Knipscheer, & Deeg, 2009; Whitlatch, Judge, Zarit, & Femia, 2006).

As a solution to the absence of aging preparation programs, a community life story development intervention program is proposed titled Memory Banking (MB). The concept of life story development (e.g., life histories, life narratives, and biographies) is based within a life course perspective (Giele & Elder, 1998), through which individuals can convey important memories of situations, events, sensations, emotions, and meanings toward worldviews, behavior, and decisions (Haight, 1989; van Manen, 1990). A focus on synthesis and integration types of reminiscence is known to promote successful aging (Wong & Watt, 1991). The development of MB builds on findings from earlier research and the Mental Healthiness Aging Initiative (MHAI), a program created to raise awareness and knowledge in rural areas about the mental health of older adults through collaborations with the University of Kentucky's Cooperative Extension Service (Kruger, Murray, Zanjani, 2011a, 2011b; Zanjani, Kruger, & Murray, 2011). Through MHAI, specific themes related to the management of mental health and aging were identified and incorporated into MB, including the importance of emotional health, the ability to remain active and engaged through old age, the importance of intergenerational activities, and most important being the value of sharing one's life story.

The MB intervention as developed is centralized on five components to reduce age-related distress and burden: life story development, communication, social support, brain exercise, and legacy building. Research has shown that individuals who engage in narrative life history interviews gain personal satisfaction and experience clinical therapeutic improvements in mental health through telling their stories (Bohlmeijer, Smit, & Cuijpers, 2003; Chiang, Lu, Chu, Chang, & Chou, 2008; Haight, Michel, & Hendrix, 2000; Hilgeman et al., 2013; Kenyon & Randall, 1997; Rybarczyk & Bellg, 1997). Another component, increased communication, promotes perceived support and health (Chung, 2009; Cox, Green, Hobart, Jang, & Seo, 2007; Faer, 1995; Grasel, Wiltfang, & Kornhuber, 2003; Spitznagel, Tremont, Davis, & Foster, 2006). An increased sense of burden and health distress can occur when individuals do not feel supported (Chiou, Chang, Chen, & Wang, 2008). In support, a greater sense of social support and understanding has been shown to limit rates of institutionalization and abuse (Spitznagel et al., 2006). Furthermore, reminiscence-type interventions can promote interpersonal social connections, even among individuals with memory loss (Kasl-Godley & Gatz, 2000; Perese, Simon, & Ryan, 2008; Rentz, 1995).

Memory, like a muscle, follows the “use it or lose it” philosophy, meaning both the health and function of the brain can improve with proper use (Swaab et al., 2002). Thus as another component, to fully tap episodic memory, the memory for personal experiences related to time, event, and place (Papalia, Sterns, Feldman, & Camp, 2007) is targeted in the MB intervention through numerous activities with the use of visual images, spoken and written words, and the chunking of life information. Finally, legacies can be situated within life stories, by making it possible to pass something on to the next generation, thus attaining a limited form of immortality and offering a personal contribution to the future (Erikson, 1985; Erikson, 1998; Hunter & Rowles, 2005). Because the process of leaving a legacy is entwined within individual life stories, and because life stories provide meaning to the human experience and enhance personal understanding, MB was designed to facilitate the legacy building process and help participants recognize meaning and purpose from their lived experiences and future plans (Hunter & Rowles, 2005).

Earlier, the use of life review has been utilized in the context of palliative care (Falls, 2008). Interventions for palliative care have been designed to improve the experience of many individuals: patients, families, and staff (Hall, Kolliakou, Petkova, Froggatt, & Higginson, 2011). Research has indicated that there can be formal life review between the nurses and palliative care patients to improve patient staff understanding (Trueman & Parker, 2006; Xiao, Kwong, Pang, & Mok, 2012). Family-based life review in the context of palliative care has also improved emotional experiences in patients, caregiver groups, and family communication (Allen, 2009; Allen, Hilgeman, Ege, Shuster, & Burgio, 2008). Individual-based life-review-oriented therapy has shown the ability to reduce distress in palliative (Chochinov et al., 2005; Chochinov et al., 2011) and long-term patients (Chochinov et al., 2012). Life review also can be used for bereaving family members to improve their well-being (Ando et al., 2010; McClement et al., 2007). Within clinical contexts, integrating patient life stories provides understanding for a person’s life in context and can aid with establishing the understanding that an older adult is more than a medical chart or disease.

Impaired mental health, social support, and quality of life harm developmental processes, prevent personal growth, trigger physical and mental decline, and can collectively lead to burden and distress in old age (Zahodne & Tremont, 2013). Knowing that early intervention is the ideal management strategy for late life distress (Chen & Adams, 2010), this study explores the feasibility of a community intervention that is based in the creation of life stories as an intervention tool for the aging process (Knight & Losada, 2011), where mental health, social support, and quality of life outcomes were examined as risk factors for late life burden and distress.

In this study, MB focuses on community dwelling members, and is delivered within existing and established community organizations, specifically Cooperative Extension. Using innovative community settings addresses the need for translational mental health research to establish community oriented mental health promotion, prevention, and management (Bray, 2010; Kazdin, 2009). Cooperative Extension is a partnership that began in 1914 when county, state, and federal governments agreed that by joining together they could provide all citizens with access to the wealth of knowledge generated by public universities (<http://www.csrees.usda.gov/Extension/>). Today, that partnership includes county governments

working to solve local problems, a national network of land-grant universities, and the U.S. Department of Agriculture. Cooperative Extension provides educational programming in five key areas: sustaining agriculture and forestry, protecting the environment, maintaining viable communities, developing responsible youth, and developing strong, healthy, and safe families.

This research study specifically explores the community feasibility of MB where mental health, social support, and quality of life outcomes were examined as risk factors for burden and distress. We hypothesized that by participating in MB, there will be improvements in reported mental health, social support, and quality of life. Study findings will also expand the life story outcome literature to community public health applications.

Method

MB was designed to promote mental health, social support, and quality of life using a life story approach. The main objective of MB was for participants to be able to carry out life story exercises and activities to integrate future, current, and past events and experiences around eight key life domains: family/friends, work/volunteer, spirituality, place/home, education/learning, leisure/hobbies, health, and historical contexts. Individuals participating in MB were asked to strategically document and share their life story and health history, including future dreams, aspirations, plans, and decisions in the targeted key life domains. A research team consisting of three PhD researchers in the area of aging, community health, life story, and health promotion/mental health, with a research assistant, developed the MB intervention curriculum.

The MB curriculum was centralized on five components—life story, communication, social support, brain exercise, and legacy building—and designed to affect commonly identified late life burden risk factors—mental health, social support, and quality of life. The main activity in MB was personalized development of life stories across all lessons. MB was centrally structured around providing participants with the knowledge and skills necessary for collecting, documenting, sharing, and maintaining life stories and health histories. Another main component of MB was communication and social support. Communication and social support was targeted in MB through partner and group activities throughout the lessons. For example, in Lesson 1, individuals were asked to work with other group members to identify an event they both experienced and to compare and contrast their individual memories of that event (i.e., President Kennedy's assassination). Also, throughout the lessons, as individuals were building their lifelines, tasks were assigned where significant information was shared with accompanying participants. MB was designed to promote brain activity through the process of documenting and sharing one's life story and health history. This brain activity was promoted throughout MB by the development of the individual lifelines and multiple activities and assignments. For example, participants were assigned in Lesson 1 to identify 10 personally significant life events and experiences. Then, in Lesson 2, participants were asked to map these chronologically on their lifelines, and then, in Lesson 3, participants coded and mapped each event as positive and negative on their individual lifeline.

Finally, legacy was promoted in MB through the development of lifelines as a tool to educate future generations about significant events in their past and wishes for the future. People tend to associate legacy with the giving of material goods, but research identifies additional categories of legacy that extend beyond heirlooms, possessions, and stories (material legacy) to include biological legacy (passing on genes, transmission of health conditions, and the use of one's body) and legacy of values (personal, social, cultural; Hunter & Rowles, 2005). MB, like legacy, is personal, flexible, and entails significant identity building as participants review, re-work, and self-edit their story (Butler, 1963; Haight, Michel, & Hendrix, 1998; Hunter & Rowles, 2005; Peck, 2001). In MB, participants were asked to create personal health histories, with the direct attention of leaving family members with guidance about familial health risks. The idea of legacy was further reinforced in Lesson 3 when participants were directly asked to consider how they were going to ensure that their values and beliefs would be passed onto future generations.

MB was structured into four group lessons. As outlined in Table 1, each lesson consisted of a PowerPoint lecture, activities (e.g., individual, team, and group), and a homework assignment. Specifically, Lesson 1 was designed to introduce MB and explain the importance of a life story while focusing on personal and social benefits. In Lesson 2, participants identified the eight key life domains. Lesson 3 focused on participants giving personal meaning to the eight lifelines described in Lesson 2. The final lesson, Lesson 4, focused on how participants can continue to develop their lifelines and continue to share their life story with important people in their lives, once the intervention program ends. All MB lessons were presented by a moderator (the research assistant) in PowerPoint format, and supplemented with presentation and activity handouts to ease intervention comprehension. The research team prepared all presentation materials.

Procedure

Between October 2010 and September 2012, eight MB workshops were administered in Kentucky. Participants were recruited through fliers disseminated at two Cooperative Extension offices (Groups 1, 3, 6, and 7), an adult learning facility (Group 2), the local Alzheimer's disease Center (Group 4), and a local older adult residential facility (Groups 5 and 8). Older adults (65+ years old) were recruited and encouraged to bring along a family member, friend, care receiver, or caregiver who is 18+ years old. Across groups, there was a range of 6 to 14 individuals per group. All participants were required to be above the age of 18 years, verbally communicative, and able to individually complete assessments. All participants were required to be able to provide consent and complete assessments on their own. Some participants from the Alzheimer's disease Center had diagnosed mild cognitive impairment (MCI) and were included in the trial to examine feasibility in an MCI/Alzheimer's disease context. Participants were asked to meet as a group at a precise public location (i.e., university classroom or extension office), 4 times over a 4-week period.

All study participants were asked to attend the entire MB workshop, consisting of a single 60- to 90-min lesson meeting a week for 4 consecutive weeks. For all interested participants, meeting study criteria was verified over the telephone prior to the Lesson 1 meeting. Pre-assessments were completed prior to the start of Lesson 1 material, and post-assessments

were completed during Lesson 4, after the conclusions of the MB workshop. All lessons were presented in PowerPoint format, with supplemental handouts for workshop activities. All study participants were provided with essential tools needed to fully participate in the intervention program, such as art supplies, handouts, binders, and tote bags for organization purposes. All participants within each workshop were exposed to the same lesson material. Lesson themes remained consistent across the workshops, with modifications made to content to amplify understanding and participation. All participants were compensated US \$50 for their participation and provided with light snacks at each meeting.

Measurement Variables

Demographics, mental health, social support, and quality of life levels were assessed prior to beginning Lesson 1 and again following Lesson 4. Measurement domains and indicators were selected based on identified late life stress risk factors, such as mental distress and perceived social support (Draper, Poulos, Poulos, & Ehrlich, 1996). All measures were validated paper-and-pencil assessments that took approximately 45 min to complete.

Individual Characteristics such as gender, age, income, education, race, ethnicity, employment status, and health insurance status were assessed to gain a demographic description of the participants.

Mental Health was assessed using five instruments to measure depression, mood disturbance, anxiety, emotional well-being, and cognitive ability. The *Patient Health Questionnaire-9* (PHQ-9; Kroenke, Spitzer, & Williams, 2001) was used to measure depression level (continuous format, higher scores indicate more depression, scores ≥ 5 warrant further depression evaluation needed). The PHQ-9 items are designed to assess severity of presence for nine selected depression symptoms (e.g., fatigue, sleep). The *Profile of Mood Scales* (POMS; Curran, Andrykowski, & Studts, 1995) was used to measure mood disturbance (continuous format, higher scores indicate more disturbance; possible range = 0–24). POMS are designed to assess severity of presence for 37 mood states (e.g., confused, tension, sad). The *State Anxiety Inventory* (SAI; Spielberger, Gorsuch, & Lushene, 1988) was used to measure anxiety level (continuous format, higher scores indicate more anxiety). SAI is designed to assess severity and presence for 20 anxiety-related symptoms (e.g., nervous, jittery). The *Mental Health Continuum* (MHC; Keyes, 2002, 2007) was used to measure emotional well-being (continuous format, higher scores indicate greater well-being). MHC is designed to assess level and presence for 14 well-being indicators (e.g., satisfaction, happiness). Last, the *Test Your Memory* (TYM) instrument (Brown, Pengas, Dawson, Brown, & Clatworthy, 2009) was used to measure cognitive ability (continuous format, lower scores indicate more impairment, with scores below 40 indicating probable cognitive impairment). TYM is designed to assess cognitive ability through orientation, executive functioning, numeric, verbal, naming, and memory tasks. A cutoff of 42 on the TYM has a sensitivity of 93% and specificity of 86% in the diagnosis of AD, and correlates strongly with the Mini-Mental Status Exam (van Schalkwyk, Botha, & Seedat, 2012). Using a revised cutoff $\geq 30/50$, TYM showed comparable diagnostic utility (sensitivity = 0.73, specificity = 0.88, positive predictive value = 0.77, negative predictive value = 0.86, and area under receiver operating characteristic curve = 0.89) with the Mini-Mental Status Exam

and the Addenbrooke's Cognitive Examination-Revised for the differentiation of cases of dementia from non-dementia (Hancock & Lerner, 2011). The TYM has mostly been used in observational studies. TYM has not yet been extensively used in intervention and clinical trials.

Social Support was assessed using three instruments. The *Duke Social Support Index* (Landerman, George, Campbell, & Blazer, 1989), abbreviated 23-item version, was used to measure social support in the form of perceived social interaction (range = 0–27), perceived social support (range = 0–21), and instrumental support (range = 0–13; continuous format, higher scores indicate more support). The *Emotional Intimacy Scale* (EIS; Sinclair & Dowdy, 2005; range = 0–10) focused on emotional quality of participant key relationships; the 5 items assessed relationship: acceptance, communication, assistance, understanding, and care. The *Miller Social Intimacy Scale* (MSIS; range = 0–5) identified behavioral-cognitive social perceptions (Miller & Lefcourt, 1982); the 17 items assessed level of time spent together, happiness, and importance in key relationships. Both the EIS and MSIS were used to measure perceived support (continuous format, higher scores indicate more support).

Quality of Life was assessed using the Short Form-12 Health Survey (SF-12, Jenkinson, Wright, & Coulter, 1994; Ware & Sherbourne, 1992). This survey determined both mental and physical functioning (continuous format, higher scores indicate better functioning, with a score of 50 representing average functioning). SF-12 items are structured to assess level of ability to perform certain tasks and how they are limited by personal mental and physical health status.

Data Analysis

Although the study recruitment used a social approach, all participants were treated as individual units of analysis. Repeated-measures ANOVAs were conducted in SAS 9.1. The model included Time (two levels: Pre, Post) as the independent variable. Individual models were analyzed for each measurement indicator for mental health, social support, and quality of life (dependent variables): depression, mood disturbance, anxiety, emotional well-being, cognitive ability, social support, partner support, and mental/physical functioning. Preliminary analyses were conducted on the total sample. Final analyses were conducted on sample participants who had completed the pre- and post-assessments. Participants were considered adherent to the intervention if they had minimally attended the first and last intervention sessions, as indicated by completing and submitting pre- and post-assessments. In addition, selected post hoc analyses were conducted to identify group differences.

Results

Sample Characteristics

Eight MB workshops were administered in Kentucky. Of the 80 original participants, 72 individuals provided both pre- and post-assessment data. Data analyses for baseline demographic differences between the total sample ($N = 80$) and adjusted sample ($n = 72$) did not indicate any group differences. Thus, data on the 8 participants who did not complete post-assessments were not included in the final analyses (see Figure 1 for a flowchart of

participation). For the 8 individuals who did not have follow-up data, 1 participant was not able to complete the post-assessment independently, and the 7 other participants dropped out reporting time issues. Of the 72 participants who completed the baseline and follow-up assessments, the mean age was 70 years, mean education was 15.8 years, mean income was US\$43K, 72% were female, 93% were White/Caucasian, and 92% resided in an urban area. A complete description of demographic characteristics for the analyzed participants in the final analysis is provided in Table 2, divided by age group. The only significant differences between the age groups were that older adult participants were more likely to be retired ($p < .001$) and live in an urban setting ($p = .02$); no other demographic age group differences were identified.

Outcomes

Outcome data were analyzed for $n = 72$ participants after removing subject data that were incomplete ($n = 8$). Participant feedback data from $n = 69$ participants indicated that 85% of the respondents felt the program met or exceeded expectations (Hoogland, Downer, Hosier, Watkins, & Zanjani, 2013). Specifically, participants reported primary strengths of the program to be an effective memory retrieval tool, use of the Lifeline Interview Method protocol to represent key events in the life course, interactions with other participants, and potential for future benefit for themselves or others. Participants reported primary weaknesses to be the need for more time/additional lessons, periodic confusion regarding lesson instructions, and not enough participant involvement. Table 3 depicts baseline and follow-up levels of dependent variables for the participants, in general showing improvements in depression ($p = .041$), mood disturbance ($p = .0067$), and cognitive performance ($p = .0045$; see Figure 2). In addition, post hoc analyses were examined and did not indicate any significant demographic differences across participant improvement performance levels.

Mental health effects—Participants improved in all mental health domains (Table 3), with significant improvements in depression (F value = 4.32, $p = .04$) and mood disturbance (F value = 7.80, $p = .0007$). Results also indicated patterns for improvement in anxiety (F value = 3.89, $p = .053$) and emotional well-being (F value = 2.23, $p = .14$). The cognitive assessment was only administered after the third grouping, due to a modification to the original protocol. A significant improvement in cognitive performance (F value = 4.36, $p = .045$) was observed across participating groups, with significant change in orientation (F value = 7.15, $p = .012$) and visuospatial clock (F value = 4.43, $p = .044$) tasks.

Social support effects—There were no significant improvements in emotional intimacy, social intimacy, social interaction, social support, or instrumental support (Table 3). Results did indicate patterns of improvement in emotional intimacy (F value = 2.7, $p = .10$) and reduction in social interaction (F value = 2.99, $p = .09$).

Quality of life effects—There were no significant patterns of improvements for quality of life (Table 3). Results indicated no effect for physical or mental functioning.

Discussion

Results indicated that the MB intervention is promising and supports further progress and investigation in the area of life story development as a tool for aging preparation to prevent aging related distress. Individuals were successfully recruited to participate in MB, and consequently showed positive mental health change over 4 weeks. Future research is needed to ensure effectiveness of the MB intervention through wider dissemination, programming modifications to create improvement in social support and quality of life, and venue alterations.

Specifically, findings indicated positive change in depression, mood disturbance, and cognitive performance, with patterns toward improvement in anxiety and well-being among MB participants. These findings are consistent with previous life story studies that have also detected improvements in various mental health domains such as self-esteem (Chao et al., 2006), depression (Jones & Beck-Little, 2002), life satisfaction (Haight et al., 2000), and anxiety (Pot et al., 2010). Improvement in mental health can significantly reduce burden and distress in late life (Knight & Losada, 2011) and can improve other health indicators, including physical health, health behaviors, and risk of premature mortality (National Association of State Mental Health Program Directors, 2006). Also to fully tap episodic memory, the MB intervention incorporated the use of visual images, spoken and written words, and the chunking of life information to follow the “use it or lose it” philosophy (Swaab et al., 2002). Consequently, we detected improvement in cognitive performance, specifically in orientation and visuospatial tasks, as a result of the mental exercise and practice supported in the MB intervention.

The MB intervention did not show evidence for improvement in perceived social support or sense of intimacy. There was only a pattern of improvement in emotional intimacy. The absence of social support improvement is surprising, considering efforts made to promote social interaction in MB, and due to existing evidence for reminiscence-type interventions promoting interpersonal connections, even among individuals with memory loss (Kasl-Godley & Gatz, 2000; Perese et al., 2008; Rentz, 1995). Future efforts should consider additional methods to promote detectable improvement in perceived social support and social intimacy in MB. For instance, in the current protocol, social-based homework activities were not assigned. Therefore, as an initial strategy, team-based homework activities can be incorporated into the MB curriculum to promote social support. Thereafter, the effects of enhanced social activities in the MB curriculum need to be examined (Chiou et al., 2008; Chung, 2009; Cox et al., 2007; Faer, 1995; Grasel et al., 2003; Spitznagel et al., 2006). An alternative explanation is that time to participate in MB reduced time to socialize in other settings, hence a reduction in perceived social interaction. Thus, emphasizing and highlighting the socialization aspect in the MB program need to be done and examined to better understand the impact on reported perceived social interaction.

In the current study, there was no reliable evidence supporting an improvement in quality of life as determined by physical and mental functioning, despite evidence that MB led to mental health improvement. An explanation for consideration is that a 4-week pre-post measurement period is not sufficient time to detect reliable improvement in functioning. In

the literature, there is evidence for a short follow-up period producing no quality of life/ functioning improvement, despite improvement in health indicators (Zanjani et al., 2008). Accordingly, an extended long-term measurement period could provide evidence for a quality of life improvement. Long-term effects on quality of life indicators require further inquiry.

In conclusion, mental health improvement was seen in study participants recruited through a range of forums: Cooperative Extension offices, adult learning, residential care, and the local Alzheimer's disease Center. The range of recruitment forums speaks to the versatility of MB audiences and wide applicability of MB objectives. In addition, the effects of the MB intervention are especially encouraging because this study included three participants who were diagnosed with MCI. MB as designed is well suited for MCI patients because the intervention targets the use of long-term memory (Rentz, 1995), which remains relatively intact in MCI patients (Forstl & Kurz, 1999).

As discussed earlier, the development of MB builds on earlier research, specifically the MHAI, a program created to raise awareness and knowledge in rural areas about the mental health of older adults through collaborations with the University of Kentucky's Cooperative Extension Service (Kruger et al., 2011a, 2011b; Zanjani et al., 2011). MB focuses on community dwelling members and is delivered within existing and established community organizations. Using community settings addresses the need to establish translational mental health research and community oriented mental health promotion, prevention, and management (Bray, 2010; Kazdin, 2009). An area to consider for future growth is Senior Centers. Senior Centers are supported by the Older American Act, to establish and support numerous community centers located across the United States, focused on serving older adults. Senior Centers are currently in the process of modernizing to address the needs and identity of the baby boomers through improved messaging, environment, and programming. Although not utilized in the current study, expanding to Senior Centers can reach out to an additional segment of older adults (Fernandez, Scales, Pineiro, Schoenthaler, & Ogedegbe, 2008). If effective, the feasibility of community organizations adapting MB should be further explored.

It is important for future investigations in this area to overcome limitations presented in this study. Most important to note is the limited sample size. Future research needs to place emphasis on expanding the sample size to provide sufficient power to compare results with a control group (Cohen, 1992). While at the feasibility and safety intervention development phase, using a pre- and post-test design is appropriate; in the future, a randomized controlled design will be necessary to explore effectiveness (Stanely, 2007). Incorporating a control group that has similar level of social contact would be ideal to identify and differentiate MB intervention effects with that of social contact exposure. A second issue to consider is the diversity of the sample and its generalizability. As indicated in the sample characteristics, the current sample is limited in diversity, with a higher distribution of White individuals having high levels of education and income, and living in a geographically limited region. With an increase in sample size, attempts need to be made to improve representation of individuals who are non-White, lower income/education levels, across varying geographic regions to ensure effectiveness across diverse demographics and cultural contexts, along

with the tracking of individual status effects (e.g., caregiving role and duration, disability status, primary morbidity; Mokuau & Tomioka, 2010). One way to expand the diversity of the sample is to diversify recruitment efforts to regions with varying demographic characteristics, such as regions with greater minority representation in collaboration with Cooperative Extension or other key community organizations that are representative of the intended community makeup. Once community-level groupings can be identified, multi-level modeling can be done to examine treatment invariance across and within communities. Also, to be more comprehensive, future research needs to incorporate dose effects to examine the amount of MB exposure needed to produce sustained benefits across study outcomes (how much more than 4–6 hr presented in this study), and include a longer follow-up to compare longer term benefits. Finally, new forums for MB need to be investigated. For instance, MB effectiveness needs to be examined in clinical settings with families who report facing aging related distress (Song, Devito Dabbs, Studer, Arnold, & Pilewski, 2010) or with social workers trying to support older adults (Stevens-Roseman, 2009), or as an online and/or a self-administered MB program (Rodeschini, 2011).

Conclusion

Findings indicated that MB is a feasible intervention. Recruitment efforts resulted in $n = 72$ individuals providing complete data with outcomes indicating improvements in mental health. MB feasibility and effect outcomes suggest that the intervention is promising and supports continued investigation and progress in the area of life story development as a tool for community aging preparation to prevent age-related burden risk factors. Future research is needed to ensure effectiveness of the MB intervention through wider dissemination, and by incorporating programming modifications to create improvement in social support and quality of life. In addition, the versatility of MB needs to be explored to aid clinical, social work, and homebound older adult settings. Improved MB effectiveness and versatility can have a major impact on improving social burden and positively affect the lives of many older adults.

Acknowledgments

Assistance with revisions was received from Lauren Crook from the University of Maryland. Also, this research would not have been possible without the support of the participants.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by grants from the National Institute of Health awarded to Faika Zanjani (National Institute of Drug Abuse 5K01DA031764), Tom Curry (National Institute of Drug Abuse 5K12 DA014040), Health Education Through Extension Leadership (HEEL) center, which is supported by Cooperative State Research, Education, and Extension Service/United States Department of Agriculture Federal Administration, and the Research Trust Challenge Grant awarded to the Graduate Center for Gerontology at the University of Kentucky.

References

- Allen RS. The legacy project intervention to enhance meaningful family interactions: Case examples. *Clinical Gerontologist*. 2009; 32:164–176. [PubMed: 20046967]

- Allen RS, Hilgeman MM, Ege MA, Shuster JL Jr, Burgio LD. Legacy activities as interventions approaching the end of life. *Journal of Palliative Medicine*. 2008; 11:1029–1038. [PubMed: 18788966]
- Ando M, Morita T, Miyashita M, Sanjo M, Kira H, Shima Y. Effects of bereavement life review on spiritual well-being and depression. *Journal of Pain and Symptom Management*. 2010; 40:453–459. [PubMed: 20594802]
- Bohlmeijer E, Smit F, Cuijpers P. Effects of reminiscence and life review on late-life depression: A meta-analysis. *International Journal of Geriatric Psychiatry*. 2003; 18:1088–1094. [PubMed: 14677140]
- Bray JH. The future of psychology practice and science. *American Psychologist*. 2010; 65:355–369. [PubMed: 20642298]
- Brown J, Pengas G, Dawson K, Brown LA, Clatworthy P. Self-administered cognitive screening test (TYM) for detection of Alzheimer's disease: Cross sectional study. *British Medical Journal*. 2009; 338:1426–1428.
- Butler RN. The life review: An interpretation of reminiscence in the aged. *Psychiatry*. 1963; 26:65–76. [PubMed: 14017386]
- Chao SY, Liu HY, Wu CY, Jin SF, Chu TL, Huang TS, Clark MJ. The effects of group reminiscence therapy on depression, self-esteem, and life satisfaction of elderly nursing home residents. *Journal of Nursing Research*. 2006; 14:36–45. [PubMed: 16547904]
- Chen YM, Adams E. Understanding factors that influence success of home- and community-based services in keeping older adults in community settings. *Journal of Aging and Health*. 2010; 22:267–291. [PubMed: 20103687]
- Chiang K, Lu R, Chu H, Chang Y, Chou K. Evaluation of the effect of a life review group program on self-esteem and life satisfaction in the elderly. *International Journal of Geriatric Psychiatry*. 2008; 23:7–10. [PubMed: 17477451]
- Chiou CJ, Chang HY, Chen IP, Wang HH. Social support and caregiving circumstances as predictors of caregiver burden in Taiwan. *Archives of Gerontology and Geriatrics*. 2008; 48:419–424. [PubMed: 18602706]
- Chochinov HM, Cann B, Cullihall K, Kristjanson L, Harlos M, McClement SE, Hassard T. Dignity therapy: A feasibility study of elders in long-term care. *Palliative & Supportive Care*. 2012; 10:3–15. [PubMed: 22329932]
- Chochinov HM, Hack T, Hassard T, Kristjanson LJ, Mc-Clement S, Harlos M. Dignity therapy: A novel psychotherapeutic intervention for patients near the end of life. *Journal of Clinical Oncology*. 2005; 23:5520–5525. [PubMed: 16110012]
- Chochinov HM, Kristjansonm LJ, Breitbart W, McClement S, Hack TF, Hassard T, Harlos M. Effect of dignity therapy on distress and end-of-life experience in terminally ill patients: A randomised controlled trial. *The Lancet Oncology*. 2011; 12:753–762. [PubMed: 21741309]
- Chung JC. An intergenerational reminiscence programme for older adults with early dementia and youth volunteers: Values and challenges. *Scandinavian Journal of Caring*. 2009; 23:259–264.
- Cohen J. A power primer. *Psychological Bulletin*. 1992; 112:155–159. [PubMed: 19565683]
- Cox EO, Green KE, Hobart K, Jang LJ, Seo H. Strengthening the late-life care process: Effects of two forms of a care-receiver efficacy intervention. *The Gerontologist*. 2007; 47:388–397. [PubMed: 17565103]
- Curran SL, Andrykowski MA, Studts JL. Short Form of the Profile of Mood States (POMS-SF): Psychometric information. *Psychological Assessment*. 1995; 7:80–83.
- Draper BM, Poulos RG, Poulos CJ, Ehrlich F. Risk factors for stress in elderly caregivers. *International Journal of Geriatric Psychiatry*. 1996; 11:227–231.
- Erikson, EH. *The life cycle completed*. New York, NY: Norton; 1985.
- Erikson, EH. *The life cycle completed Extended version with new chapters on the ninth stage by Joan M Erikson*. New York, NY: Norton; 1998.
- Faer M. The Intergenerational Life History Project: Promoting health and reducing disease in adolescents and elders. *Public Health Reports*. 1995; 110:194–198. [PubMed: 7630999]
- Falls CE. Palliative healthcare: Cost reduction and quality enhancement using end-of-life survey methodology. *Journal of Gerontological Social Work*. 2008; 51:53–76. [PubMed: 18826068]

- Fernandez S, Scales KL, Pineiro JM, Schoenthaler AM, Ogedegbe G. A senior center-based pilot trial of the effect of lifestyle intervention on blood pressure in minority elderly people with hypertension. *Journal of the American Geriatric Society*. 2008; 56:1860–1866.
- Forstl H, Kurz A. Clinical features of Alzheimer's disease. *European Archives of Psychiatry & Clinical Neuroscience*. 1999; 249:288–290. [PubMed: 10653284]
- Fowler CF, Fischer CL. Attitudes toward decision making and aging, and preparation for future care needs. *Health Communication*. 2009; 24:619–630. [PubMed: 20183370]
- Giele, JZ.; Elder, GH, Jr. Life course research: Development of a field. In: Giele, JZ.; Elder, GH., Jr, editors. *Methods of life course research*. Thousand Oaks, CA: Sage; 1998. p. 5-27.
- Grasel E, Wiltfang J, Kornhuber J. Non-drug therapies for dementia: An overview of the current situation with regard to proof of effectiveness. *Dementia and Geriatric Cognitive Disorders*. 2003; 15:115–125. [PubMed: 12584426]
- Haight BK. Life review: A therapeutic modality for home health. *South Carolina Nurses Association*. 1989; 4:19–20.
- Haight BK, Michel Y, Hendrix S. Life review: Preventing despair in newly relocated nursing home residents' short- and long-term effects. *International Journal of Aging & Human Development*. 1998; 47:119–142. [PubMed: 9836092]
- Haight BK, Michel Y, Hendrix S. The extended effects of the life review in nursing home residents. *International Journal of Aging & Human Development*. 2000; 50:151–168. [PubMed: 10791613]
- Hall S, Kolliakou A, Petkova H, Froggatt K, Higginson IJ. Interventions for improving palliative care for older people living in nursing care homes. *Cochrane Database of Systematic Reviews*. 2011; 2011(3):1–31.
- Hancock P, Lerner AJ. Test Your Memory test: Diagnostic utility in a memory clinic population. *International Journal of Geriatric Psychiatry*. 2011; 26:976–980. [PubMed: 21845600]
- Hilgeman MM, Allen RS, Snow AL, Durkin DW, DeCoster J, Burgio LD. Preserving Identity and Planning for Advance Care (PIPAC): Preliminary outcomes from a patient-centered intervention for individuals with mild dementia. *Aging & Mental Health*. 2013; 18:411–424. [PubMed: 24359036]
- Hoogland, AL.; Downer, BG.; Hosier, AF.; Watkins, JF.; Zanjani, F. Memory banking: Evaluating a multi-session life story intervention. Poster presented at the 2013 College of Public Health Research Day; Lexington, KY: University of Kentucky; 2013 Apr.
- Hunter BG, Rowles GD. Leaving a legacy: Toward a typology. *Journal of Aging Studies*. 2005; 19:327–347.
- Jenkinson C, Wright L, Coulter A. Criterion validity and reliability of the SF-36 in a population sample. *Quality of Life Research*. 1994; 3:7–12. [PubMed: 8142947]
- Jones ED, Beck-Little R. The use of reminiscence therapy for the treatment of depression in rural-dwelling older adults. *Issues in Mental Health Nursing*. 2002; 23:279–290. [PubMed: 11942192]
- Jonker AA, Comijs HC, Knipscheer KC, Deeg DJ. The role of coping resources on change in well-being during persistent health decline. *Journal of Aging and Health*. 2009; 21:1063–1082. [PubMed: 19833864]
- Kasl-Godley J, Gatz M. Psychosocial interventions for individuals with dementia: An integration of theory, therapy, and a clinical understanding of dementia. *Clinical Psychology Review*. 2000; 20:755–782. [PubMed: 10983267]
- Kazdin AE. Psychological science's contributions to a sustainable environment: Extending our reach to a grand challenge of society. *American Psychologist*. 2009; 64:339–356. [PubMed: 19618968]
- Kenyon, GM.; Randall, WL. *Restorying our lives: Personal growth through autobiographical reflection*. Westport, CT: Praeger; 1997.
- Keyes CL. The Mental Health Continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*. 2002; 14:207–222. [PubMed: 12096700]
- Keyes CL. Promoting and protecting mental health as flourishing. *American Psychologist*. 2007; 62:95–108. [PubMed: 17324035]
- Knight, BG.; Losada, A. Family caregiving for cognitively or physically frail older adults: Theory, research, and practice. In: Warner Schaie, K.; Willis, SL., editors. *Handbook of the psychology of aging*. 7. Burlington, MA: Academic Press; 2011. p. 353-365.

- Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*. 2001; 16:606–613. [PubMed: 11556941]
- Kruger T, Murray D, Zanjani F. Mental healthiness and aging initiative: Lessons from a social marketing-informed research campaign in Kentucky. *Social Marketing Quarterly*. 2011a; 17(3): 18–38.
- Kruger T, Murray D, Zanjani F. Rural community members' perspectives on mental health and aging: An ecological approach to interpreting and applying focus group results. *Journal of Extension*. 2011b; 49(2):1–11.
- Landerman RL, George LK, Campbell RT, Blazer DG. Alternative models of the stress buffering hypothesis. *American Journal of Community Psychology*. 1989; 17:625–642. [PubMed: 2627025]
- Lun MWA. Student knowledge and attitudes toward older people and their impact on pursuing aging careers. *Educational Gerontology*. 2011; 37:1–11.
- McClement S, Chochinov HM, Hack T, Hassard T, Kristjanson LJ, Harlos M. Dignity therapy: Family member perspectives. *Journal of Palliative Medicine*. 2007; 10:1076–1082. [PubMed: 17985964]
- Miller RS, Lefcourt HM. The assessment of social intimacy. *Journal of Personality Assessment*. 1982; 46:514–518. [PubMed: 16367633]
- Mokuau N, Tomioka M. Caregiving and older Japanese adults: Lessons learned from the periodical literature. *Journal of Gerontological Social Work*. 2010; 53:117–136. [PubMed: 20094932]
- Parks, J.; Svendsen, D.; Singer, P.; Foti, M., editors. National Association of State Mental Health Program Directors. Medical Directors Council Technical Report: Morbidity and mortality in people with serious mental illness. Alexandria, VA: NASMHPD; 2006. 13th Technical Report
- Papalia, DE.; Sterns, HL.; Feldman, RD.; Camp, CJ. Adult development and aging. 3. Boston, MA: McGraw-Hill; 2007.
- Peck MD. Looking back at life and its influence on subjective well-being. *Journal of Gerontological Social Work*. 2001; 35(2):3–20.
- Perese EF, Simon MR, Ryan E. Promoting positive student clinical experiences with older adults through use of group reminiscence therapy. *Journal of Gerontological Nursing*. 2008; 34(12):46–51. [PubMed: 19113003]
- Pot AM, Bohlmeijer ET, Onrust S, Melenhorst AS, Veerbeek M, DeVries W. The impact of life review on depression in older adults: A randomized controlled trial. *International Psychogeriatrics*. 2010; 22:572–581. [PubMed: 20128949]
- Rentz C. Reminiscence: A supportive intervention for the person with Alzheimer's disease. *Journal of Psychosocial Nursing and Mental Health Services*. 1995; 33(11):15–20. [PubMed: 8583426]
- Rodeschini G. Gerotechnology: A new kind of care for aging? An analysis of the relationship between older people and technology. *Nursing & Health Sciences*. 2011; 13:521–528. [PubMed: 21929580]
- Rybarczyk, B.; Bellg, A. Listening to life stories: A new approach to stress intervention in health care. New York, NY: Springer; 1997.
- Sinclair VG, Dowdy SW. Development and validation of the Emotional Intimacy Scale. *Journal of Nursing Measures*. 2005; 13:193–206.
- Song MK, Devito Dabbs AJ, Studer SM, Arnold RM, Pilewski JM. Exploring the meaning of chronic rejection after lung transplantation and its impact on clinical management and caregiving. *Journal of Pain and Symptom Management*. 2010; 40:246–255. [PubMed: 20541897]
- Spielberger, CD.; Gorsuch, RL.; Lushene, RE. Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press; 1988.
- Spitznagel MB, Tremont G, Davis JD, Foster SM. Psychosocial predictors of dementia caregiver desire to institutionalize: Caregiver, care recipient, and family relationship factors. *Journal of Geriatric Psychiatry and Neurology*. 2006; 19:16–20. [PubMed: 16449755]
- Stanely K. Design of randomized controlled trials. *Circulation*. 2007; 115:1164–1169. [PubMed: 17339574]
- Stevens-Roseman ES. Eleven tips to lighten the load: Optimizing the blessing of family caregiving. *Journal of Gerontological Social Work*. 2009; 52:401–405. [PubMed: 19382026]

- Swaab DF, Dubelaar EJ, Hofman MA, Scherder EJ, van Someren EJ, Verwer RW. Brain aging and Alzheimer's disease; use it or lose it. *Progress in Brain Research*. 2002; 138:343–373. [PubMed: 12432778]
- Trueman I, Parker J. Exploring community nurses' perceptions of life review in palliative care. *Journal of Clinical Nursing*. 2006; 15:197–207. [PubMed: 16422737]
- van Manen, M. *Researching lived experience*. Albany: State University of New York Press; 1990.
- van Schalkwyk G, Botha H, Seedat S. Comparison of 2 dementia screeners, the Test Your Memory Test and the Mini-Mental State Examination, in a primary care setting. *Journal of Geriatric Psychiatry and Neurology*. 2012; 25:85–88. [PubMed: 22689700]
- Ware JE Jr, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Medical Care*. 1992; 30:473–483. [PubMed: 1593914]
- Whitlatch CJ, Judge K, Zarit SH, Femia E. Dyadic intervention for family caregivers and care receivers in early-stage dementia. *The Gerontologist*. 2006; 46:688–694. [PubMed: 17050761]
- Wong PTP, Watt LM. What types of reminiscence are associated with successfully aging. *Psychology and Aging*. 1991; 6:272–279. [PubMed: 1863396]
- World Health Organization. Ageing and Life Course. Interesting facts about ageing. 2012. Retrieved September 8, 2014 from <http://www.who.int/ageing/about/facts/en/>
- Xiao H, Kwong E, Pang S, Mok E. Perceptions of a life review programme among Chinese patients with advanced cancer. *Journal of Clinical Nursing*. 2012; 21:564–572. [PubMed: 21923673]
- Zahodne LB, Tremont G. Unique effects of apathy and depression signs on cognition and function in amnesic mild cognitive impairment. *International Journal of Geriatric Psychiatry*. 2013; 28:50–56. [PubMed: 22368079]
- Zanjani F, Kruger T, Murray D. Evaluation of the Mental Healthiness Aging Initiative: Community program to improve awareness about mental health and aging issues. *Community Mental Health Journal*. 2011; 48:193–201. [PubMed: 21234684]
- Zanjani F, Mavandadi S, Tenhave T, Katz I, Durai N, Krahn D, Oslin D. Longitudinal course of substance treatment benefits in older adults with at-risk drinking. *Journal of Gerontology, Series A: Biological Sciences & Medical Sciences*. 2008; 63:98–106.

Figure 1.
Flowchart of analyses.

Figure 2.
Mental health changes.

Table 1

Memory Banking Lesson Outline.

	Lesson 1	Lesson 2	Lesson 3	Lesson 4
Title	Memory banking 101: Understanding the life course	Memory banking: The lifelines	Memory banking: The narrative	Memory banking: Maintaining your bank
Content focus	Introduction to memory banking and baseline assessment	Key life domains, and memory triggers to recall significant life events/ experiences.	Attach meaning to the life story.	Highlight multiple purposes of memory banking. Concentrate on what happens next: Tips on future maintenance.
Activity	Baseline assessment	Incorporate Lesson 1 homework into the key life domains and begin building life story.	Make connections between key life domains and meaningful visual materials.	Discuss individual purposes — What did participant get out this? Post-evaluation/ assessment
Homework	Write list of 10 significant life events and their dates. Compare with partner.	Complete key life domains. Collect materials that tell and add meaning to story.	Coding your lifeline	Continue journaling experiences/reflect on individual purpose.

Table 2Sample Characteristics ($n = 72$).

Variable	Total sample	Older adults 65 ($n = 56$)	Younger adults < 65 years ($n = 15$)	<i>p</i> value
Age (<i>M</i> , <i>SD</i> , range)	70.33 years (13.0; 18–88)	75.4 years (6.7; 65.1–88)	51.2 years (14.0; 18.3–64)	<.001
Gender: Female	$n = 47$ (72%)	$n = 34$ (69%)	$n = 12$ (80%)	.53
Education (<i>M</i> , <i>SD</i> , range)	15.8 years (2.7; 12–22)	15.9 years (2.7; 12–22)	15.3 years (2.7; 12–19)	.48
Income (<i>M</i> , <i>SD</i> , range)	US\$43,132 (33,306; 0–156,000)	US\$45,077 (32,078; 0–156,000)	US\$38,769 (37,996; 0–100,000)	.54
Marital status: Married ^a	$n = 39$ (55%)	$n = 28$ (51%)	$n = 11$ (73%)	.15
Living status: Live with spouse/partner ^b	$n = 34$ (48%)	$n = 27$ (48%)	$n = 7$ (50%)	.90
Employment status: Unemployed, retired ^c	$n = 36$ (51%)	$n = 34$ (63%)	$n = 2$ (13%)	<.001
Race: Caucasian ^d	$n = 65$ (93%)	$n = 51$ (94%)	$n = 13$ (87%)	.30
Location: Urban	$n = 66$ (92%)	$n = 54$ (96%)	$n = 11$ (73%)	.02

Note. *P*-values in bold indicate statistical significance ($p < 0.05$)

A total of 72 participants completed MB, but one participant did not provide information for age and not all participants chose to complete the demographic questionnaire. Comparisons for continuous outcomes were made using ANOVA and comparisons for categorical variables were made using Fisher exact test. MB = Memory Banking.

^aNot married included single/never married, widowed, divorced, separated, and not married but have a significant other. Seventeen participants 65 were widowed. All other categories had 5 or fewer participants.

^bOther for living status included living alone, live with children/grandchildren, live with spouse/partner and children/grandchildren, live in an institution/retirement home, and other. Twenty participants 65 lived alone. All other categories had fewer than 5 participants.

^cOther for employment status included employed full-time, employed part-time, unemployed looking for work, unemployed disabled, unemployed volunteer, unemployed not looking for work, and other. Six participants 65 were employed part-time. All other categories had five or fewer categories.

^dOther for race included Black/African American, Asian, Pacific Islander/Native Hawaiian, Native American, and other.

Table 3Baseline and Follow-Up Dependent Variable Levels ($n = 72$).

Variable	Baseline	4-week follow-up	<i>p</i> value	<i>F</i> value
Mental health				
Depression score (PHQ-9)	4.0 (<i>SD</i> = 3.5) range = 0–16.0	3.2 (<i>SD</i> = 3.1) range = 0–17.0	.041	4.32
Anxiety	1.7 (<i>SD</i> = 0.5) range = 1.0–3.2	1.6 (<i>SD</i> = 0.4) range = 1.0–2.7	.053	3.89
Mood disturbance	3.5 (<i>SD</i> = 2.2) range = 0–12.2	2.9 (<i>SD</i> = 1.9) range = 0–10.0	.0067	7.80
Emotional well-being	54.2 (<i>SD</i> = 10.0) range = 21.0–69.0	55.6 (<i>SD</i> = 10.2) range = 33.0–70.0	.14	2.23
Cognition	46.1 (<i>SD</i> = 3.0) range = 38.0–50.0	47.2 (<i>SD</i> = 3.1) range = 36.0–50.0	.045	4.36
Social support				
Emotional Intimacy	4.3 (<i>SD</i> = 0.8) range = 1.0–5.0	4.4 (<i>SD</i> = 0.6) range = 2.4–5.0	.10	2.70
Social Intimacy	7.8 (<i>SD</i> = 2.0) range = 1.5–10.0	7.8 (<i>SD</i> = 2.2) range = 1.5–10.0	.79	0.07
Social Interaction	8.2 (<i>SD</i> = 2.1) range = 4.0–13.0	7.8 (<i>SD</i> = 2.4) range = 1.0–12.0	.089	2.99
Social Support	18.5 (<i>SD</i> = 2.5) range = 10.0–21.0	18.5 (<i>SD</i> = 2.6) range = 11.0–21.0	.95	0.0
Instrumental Support	7.8 (<i>SD</i> = 2.7) range = 0–12.0	8.0 (<i>SD</i> = 2.7) range = 2.0–13.0	.37	0.8
Quality of life				
Mental functioning (SF-12)	54.4 (<i>SD</i> = 8.0) range = 37.9–72.6	55.0 (<i>SD</i> = 8.9) range = 26.3–70.6	.69	0.16
Physical Functioning (SF-12)	42.6 (<i>SD</i> = 11.6) range = 10.9–62.7	42.7 (<i>SD</i> = 10.8) range = 15.3–60.6	.73	0.12

Note. Lower scores for depression, anxiety, and mood disturbance indicate improvement. Memory was not examined during the entire sessions of the intervention. $n = 34$ participants were assessed for changes in memory using the “test your memory” assessment. PHQ-9 = Patient Health Questionnaire-9; SF-12 = Short Form-12 Health Survey. *p* values in bold indicate statistical significance ($p < .05$).