Effects of a Creative Expression Intervention on Emotions, Communication, and Quality of Life in Persons With Dementia

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▶ **Background:** Effective nonpharmacological interventions are needed to treat neuropsychiatric symptoms and to improve quality of life for the 5.3 million Americans affected by dementia.

▶ **Objective:** The purpose of this study was to test the effect of a storytelling program, TimeSlips, on communication, neuropsychiatric symptoms, and quality of life in long-term care residents with dementia.

▶ **Methods:** A quasi-experimental, two-group, repeated measures design was used to compare persons with dementia who were assigned to the twice-weekly, 6-week TimeSlips intervention group (*n* = 28) or usual care group (*n* = 28) at baseline and postintervention at Weeks 7 and 10. Outcome measures included the Cornell Scale for Depression in Dementia, the Neuropsychiatric Inventory—Nursing Home Version, the Functional Assessment of Communication Skills, the Quality of Life—Alzheimer's Disease, and the Observed Emotion Rating Scale (this last measure was collected also at Weeks 3 and 6 during TimeSlips for the treatment group and during mealtime for the control group).

▶ **Results:** Compared with the control group, the treatment group exhibited significantly higher pleasure at Week 3 (*p* < .001), Week 6 (*p* < .001), and Week 7 (*p* < .05). Small to moderate treatment effects were found for Week 7 social communication (*d* = .49) and basic needs communication (*d* = .43). A larger effect was found for pleasure at Week 7 (*d* = .58).

▶ **Discussion:** As expected, given the engaging nature of the TimeSlips creative storytelling intervention, analyses revealed increased positive affect during and at 1 week postintervention. In addition, perhaps associated with the intervention's reliance on positive social interactions and verbal communication, participants evidenced improved communication skills. However, more frequent dosing and booster sessions of TimeSlips may be needed to show significant differences between treatment and control groups on long-term effects and other outcomes.

▶ **Key Words:** art · behavioral symptoms · dementia · emotions

Dementia is prevalent in long-term care patients, affecting up to 70% of nursing home residents (Alzheimer's Association, 2010). Although antidementia drugs (cholinesterase inhibitors and memantine) show benefits over placebo in attenuating cognitive decline, their effects on the emotional and behavioral changes associated with dementia are inconsistent (Cummings, 2004; Raina et al., 2008; Sink, Holden, & Yaffe, 2005).

The literature on dementia supports the efficacy of nonpharmacological interventions for treating common neuropsychiatric symptoms (e.g., agitation, depression, passivity, aggression) and improving quality of life. Such approaches may offer persons with dementia (PWD) opportunities for social contact and engagement in meaningful activities, which are care goals endorsed by the American Geriatrics Society and the American Association for Geriatric Psychiatry (2003; Lyketsos et al., 2006). These interventions include behavior therapy, multisensory stimulation, cognitive stimulation, exercise therapy, and recreation therapy (Burgener et al., 2008; Fitzsimmons & Buettner, 2003; Livingston, Johnston, Katona, Paton, & Lyketsos, 2005; Verkaik, van Weert, & Francke, 2005). In addition, the therapeutic use of arts and humanities has been a relatively recent development in dementia care (Gerdner, 2000; Phillips & Conn, 2009). Preliminary research in the arts and other creative expression activities, such as the TimeSlips storytelling program, has shown potential for improving communication, attention, and pleasure as well as the neuropsychiatric symptoms of dementia (Basting, 2003; Gerdner, 2000). Several randomized controlled trials (RCTs) of movement and music therapy found significant improvements in agitation, general neuropsychiatric symptoms, and speech content and fluency (Brotons & Koger, 2000; Raglio et al., 2008; Sung, Chang, Lee, & Lee, 2006).

Progress in creative expression research has been hampered by multiple methodological limitations. These include use of small convenience samples, nonexperimental designs,

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Alzheimer's disease and other dementias affect an estimated 5.3 million Americans and could affect as many as 7.7 million by 2030 (Alzheimer's Association, 2010).

subjects with unconfirmed diagnosis or dementia staging, researcher-developed instruments with limited psychometrics, inadequately described interventions, and failure to link outcome variables to the intervention (Gräsel, Wiltfang, & Kornhuber, 2003; Marshall & Hutchinson, 2001). The Dementia Day Camp Research Group recently reviewed expressive arts interventions, including writing programs, art and creative activity interventions, and dance therapies, and found minimal supporting evidence for these programs (Richeson et al., 2008). The Dementia Day Camp Research Group, however, recommended continued investigation of these programs because of their versatility, benign nature, and potential benefits.

Theoretical Basis of Dementia Care

As a leading proponent of person-centered care for PWD, Kitwood (1997) posited that the primary task of dementia care is to maintain personhood in the face of cognitive decline. This requires that a defined set of psychological needs be met, including comfort, identity, inclusion, occupation, and attachment. Interactions that meet these psychological needs help maintain personhood. Furthermore, Kitwood hypothesized that a deficient social-psychological environment, one that fails to respect PWD, may actually accelerate neurological degeneration.

Kitwood (1997) identified 12 types of positive interactions—recognition, negotiation, collaboration, play, timalation, celebration, relaxation, validation, holding, facilitation, creation, and giving—and asserted that good dementia care entails varied positive interactions in continuing succession. Group activities, such as TimeSlips, provide an outlet for spontaneity and creativity and an opportunity for caregivers to initiate and sustain positive interactions with multiple residents, thereby meeting psychological needs and affirming personhood.

TimeSlips

TimeSlips is a nationally recognized group storytelling program for PWD that encourages open storytelling in PWD by stimulating imagination rather than relying on factual reminiscence (TimeSlips Creative Storytelling Project, 2010). One of the important principles of TimeSlips is that because it relies on creative abilities and not memory, participants are not frustrated by cognitive deficits. TimeSlips aligns with Kitwood's (1997) theory of dementia care by promoting self-expression in a safe, accepting environment. Communication occurs naturally as individual contributions are encouraged, recognized, and validated in a collaborative setting. Creative expression interventions like TimeSlips emphasize the uniqueness of persons, enabling them to feel included, supported, and valued (Younger & Martin, 2000).

In a typical storytelling session, PWD are seated comfortably in chairs surrounding a facilitator. A funny or staged photograph printed on 8.5×11-in. copy paper is distributed to each person in the group. Facilitators use open-ended prompts to engage the storytellers, recording verbatim responses on a flip chart or a marker board. Facilitators do not correct storytellers but instead provide whatever is needed (e.g., more time, prompts) to allow the PWD to respond to the image (Basting, 2003). Responses are woven into an inclusive narrative and periodically read back to the storytellers to help them develop the story further or bring it to a close. On the basis of extant literature, this study was designed to evaluate the potential benefits of a TimeSlips intervention on functioning and quality of life among residents in skilled nursing and assisted living facilities. Given the intervention's emphasis on and unconditional support of verbal communication as well as prior research on TimeSlips and other humanities- and art-based interventions, we predicted that participation in TimeSlips would result in improved communication. In addition, we anticipated that the socialization encouraged by the group format and the creative, collaborative storytelling task of the TimeSlips intervention would lead to improved psychological well-being as indexed by measures of psychological symptoms and quality of life. To assess the potential benefits of TimeSlips, we collected data preintervention and postintervention as well as at a midpoint of the intervention. As this was a pilot study, designed with the goal of providing preliminary data regarding treatment effect that would indicate whether longitudinal follow-up was warranted, a relatively brief follow-up interval of 1 and 4 weeks postintervention was used.

Subsequent to initiation of this study, Fritsch, Kwak, Lang, Montgomery, and Basting (2009) published the results of an RCT that compared 10 nursing homes randomly selected for TimeSlips training and implementation with 10 control nursing homes. Time sampling was used to observe resident engagement and affect across different types of activities, although not specifically during TimeSlips sessions. Researchers found significant improvement in resident general alertness (identified as an *affect* item in the resulting manuscript), resident engagement, quantity and quality of staff-initiated interactions, and staff attitudes toward PWD in treatment homes compared with control homes. Findings from this RCT suggested that diffusion of the TimeSlips program within facilities may have a multipronged effect on resident care and outcomes. Resident engagement and affect evinced improvements, and staff members who participated in the TimeSlips training reported more positive views of PWD, an effect of which may have promoted more positive staff–resident interactions.

Although providing support for some potential benefits of TimeSlips because Fritsch et al. (2009) targeted facility-level programming, the effect of TimeSlips on individual resident outcomes such as neuropsychiatric symptoms, communication, and quality of life was not evaluated. Therefore, by obtaining estimates of the effect of the TimeSlips program on measures of communication skills, quality of life, neuropsychiatric symptoms, and observed emotions in 50 to 60 long-term care residents with dementia, this pilot study provided unique insights into the potential effects of TimeSlips in the context of person-centered dementia care.

Methods

We used a quasi-experimental, two-group, repeated measures design to compare PWD receiving the TimeSlips intervention ($n = 28$) with persons receiving no intervention ($n = 28$). Nine long-term care facilities known to the principal investigator (PI) were recruited for the study; between December 2008 and July 2009, four nursing homes and two assisted living facilities sequentially enrolled and completed the study. All facilities were located in two central Missouri

metropolitan counties having populations of less than 250,000 each. To minimize contamination of the intervention's effectiveness, we assigned individual facilities to either control or intervention status (rather than having both within each facility). However, at times, facilities were not assigned randomly because of concerns about potential imbalance of group sizes.

Participants

The sample initially consisted of 56 participants. Because this was a pilot study, the primary goal was not hypothesis testing, so sample size was not determined by power considerations. Inclusion criteria were as follows: age ≥60 years, a dementia diagnosis or current treatment with a cholinesterase inhibitor, a Mini-Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) score of ≥11 but <24, the ability to understand and speak English, hearing adequate to hear the TimeSlips dialogue, and eyesight adequate to view the TimeSlips stimulus picture. We excluded persons (a) with a Cornell Scale for Depression in Dementia (CSDD) score >12, indicating severe depression (Alexopoulos, Abrams, Young, & Shamoian, 1988; Watson, Garrett, Sloane, Gruber-Baldini, Zimmerman, 2003), (b) receiving hospice care, and (c) with advanced terminal illness.

Procedures

Per procedures approved by the relevant institutional review board (IRB), recruited facilities provided the PI with names of potential participants and contact information of their family members or legal guardians. A waiver of individual authorization for disclosure of personal health information was obtained so that the facility could share the names of potential study subjects (i.e., persons with a dementia diagnosis). Privacy concerns prompted two of the six homes to distribute recruitment materials themselves. Family members received a letter explaining the study, an opt-out form with return envelope, and a recruitment flier. In accordance with state law, only court-appointed legal guardians received informed consent documents to sign in addition to the other recruitment materials. PWD also received brief letters of invitation.

We telephoned family members to explain the study. In most cases, they provided verbal assent for study personnel to contact and screen potential participants. In the absence of a court-appointed legal guardian, as was the case for the large majority of potential participants, a waiver of consent process was approved and on file with the IRB. No participants in the current study were able to make independent decisions regarding research participation.

One week before starting the intervention at each facility, we screened for eligibility the residents we had permission to contact. From residents' charts, we collected age, gender, ethnicity, education, marital status, medical diagnoses, and current medications. The PI (first author) or the study nurse visited each potential participant to obtain assent for MMSE testing and eventual participation in the study. The assent process was adapted to potential participants' level of understanding, and any evidence of dissent from the PWD overrode previously obtained responsibility party assent or legal guardian consent (Black, Rabins, Sugarman, & Karlawish, 2010). All assenting residents took the MMSE to determine

whether they met inclusion criteria. Nursing staff members involved in the direct care of study participants were invited to participate in the study as staff informants for specific measures intended for nursing staff or caregivers. Informed consent per IRB guidelines was obtained from each staff participant.

We recruited facilities sequentially to minimize overlap of intervention sessions across facilities. Assignment to the intervention and control conditions was split equally among the facilities so that two nursing homes and one assisted living facility comprised each group. Data collection for each set of treatment and control homes occurred concurrently. For each data collection visit, study participants received a flower or sugar-free chocolate candy, and staff informants received $20.

Delivery of the Intervention

The TimeSlips intervention was delivered for six consecutive weeks to participants residing in the facilities assigned to the treatment condition. We honored participants' preference to attend or not on any given day. The 1-hour sessions were held two mornings a week with groups ranging from 6 to 12 PWD, depending on the facility. In one facility, TimeSlips sessions took place in a private group meeting room; in the other two facilities, sessions were in a shared living space, a condition that resulted in other residents joining the group periodically. The PI and the research nurse, both certified TimeSlips facilitators, conducted all sessions together. Each session opened with a personalized greeting and distribution of name tags. Sessions closed with distribution of a flower or sugar-free chocolate candy. During the sessions in which emotion was observed, an additional member of the research team recorded responses to free the PI or the study nurse to observe participants. Attendance logs and field notes were recorded at each session.

At the end of data collection in each home, we offered TimeSlips on a limited schedule to the control group. Control group homes also received activity items of their choice to enrich the care of residents with dementia. Both treatment and control participants received a scrapbook of the TimeSlips stories created by their respective groups.

Measures

Unless otherwise noted, we collected the following measures at three time points: baseline (Week 0), 1 week postintervention (Week 7), and 4 weeks postintervention (Week 10). Outcomes were assessed at Week 7 to determine immediate effectiveness and at Week 10 to determine short-term retention of benefit. Emotion was observed two additional times: at Weeks 3 and 6 during the TimeSlips intervention for the treatment group and during a mealtime for the control group. At Weeks 0, 7, and 10, emotion was observed during a mealtime for both groups.

The modified Cumulative Illness Rating Scale (CIRS; Parmelee, Thuras, Katz, & Lawton, 1995) is a standardized instrument for rating the presence and the degree of pathology in 13 major organ groups as well as in the category of psychiatric or behavior problems. An Illness Severity Index is represented by the mean of all items, excluding the behavioral or the psychiatric item to avoid confounding with cognitive functioning. Items are rated from 1 (*none*) to 5 (*extremely severe*), with higher scores indicating greater

illness severity. Although Cronbach's alpha coefficient was questionable ($\alpha = .67$), the Illness Severity Index was shown to significantly predict 2-year mortality among frail older institutionalized adults. For this study, CIRS ratings were based on the PI's review of residents' charts. Reliability in this study was poor ($\alpha = .45$).

The MMSE (Folstein et al., 1975) is an 11-item clinical assessment of global cognitive function. The maximum score is 30, and scores lower than 24 indicate cognitive impairment (Barrie, 2002). A 28-day test–retest reliability of .98 has been documented (Folstein et al., 1975). To limit participant burden in this study, we collected the MMSE only at baseline and Week 10.

The CSDD (Alexopoulos et al., 1988) is a 19-item clinician-administered interview of the patient and a nursing staff member to rate symptoms of depression in individuals with dementia. Items are scored from 0 to 2, with a summed score of greater than 7 suggestive of depression (Watson et al., 2003). Cronbach's alpha of .84 has been found (Alexopoulos et al., 1988). Participants' primary care providers were informed of CSDD > 7 at the time the assessment took place. In keeping with study exclusion criteria, enrolled participants with CSDD scores > 12 at Week 7 were not included in Week 10 data collection. Internal consistency reliability in this study was acceptable ($\alpha = .74$).

The Neuropsychiatric Inventory—Nursing Home Version (NPI-NH; Wood et al., 2000) is a clinician-administered interview of nursing staff to rate the frequency on a 4-point scale and severity on a 3-point scale of 10 behavioral and 2 neurovegetative items. The domain score for each item is the product of the frequency and severity. The total NPI-NH score is the sum of the domain scores for the first 10 items. A score of 4 or greater in any domain indicates clinically significant symptoms. Statistically significant interrater correlations between staff nurses' and psychologists' ratings ($r = .28$ to $.91$) have been found in all domains except those of anxiety and appetite change (Wood et al., 2000).

Adapted for use in residential settings, the Quality of Life—Alzheimer's Disease (QOL-AD; Logsdon, Gibbons, McCurry, & Teri, 2000) resident and caregiver versions are used to assess PWD relationships with friends, family, and staff as well as physical condition and mood (Edelman, Fulton, Kuhn, & Chang, 2005). The 15-item scale is administered in a structured interview and rated on a 4-point scale (poor, fair, good, or excellent). Scores range from 15 to 60, with higher scores indicating better quality of life. Internal consistency reliability of the adapted scale was .92 (Edelman et al., 2005). Alpha coefficients in this study were .89 for the staff version and .90 for the resident version.

The Functional Assessment of Communication Skills (FACS; Frattali, Thompson, Holland, Wohl, & Ferketic, 1995) is an observational tool for rating communication behaviors in the domains of social communication, daily planning, communication of basic needs, and reading, writing, and number concepts. Interviews were conducted with nursing staff rather than directly observing residents on the basis of the recognition that nursing staff would have more opportunities than the research team to observe participants' communication abilities across a range of circumstances. Only the social communication and communication of basic needs subscales were used in this study. Higher scores indicate better communication ability. Interrater reliability has ranged from .72 to .92, and mean interitem correlation of .82 has been reported (Frattali et al., 1995). Reliability in this study was excellent for the 21-item social communication subscale ($\alpha = .92$) but poor for the 7-item basic needs subscale ($\alpha = .52$).

The Observed Emotion Rating Scale (OERS; Lawton, Van Haitsma, & Klapper, 1999), previously named the Apparent Affect Rating Scale, is an observational tool for rating two positive emotions (pleasure and general alertness) and three negative emotions (anger, anxiety or fear, and sadness). Over a 10-minute period, the rater chooses one of six possible defined time intervals (e.g., 1 = never; 2 = <16 seconds; 3 = 16–59 seconds; 4 = 1–5 minutes; 5 = >5 minutes; and 7 = not in view) that a target subject displays each of the five emotions. Higher scores indicate increased duration of expression of that emotion. Interrater reliability has been variable. Fritsch et al. (2009) reported Kappa values ranging from .25 to .81, and Lawton, Van Haitsma, Perkinson, and Ruckdeschel (1999) reported Kappa values ranging from .29 to .66.

All OERS ratings were performed by the PI or by the study nurse, both of whom received OERS training with a clinical psychologist (also a coauthor of this article). As recommended by Lawton, Van Haitsma, Perkinson, et al. (1999), all three of the aforementioned team members viewed a training video developed by the Philadelphia Geriatric Center (1997). Baseline OERS Kappa values for the first treatment and control homes were .68 for pleasure and .33 for anxiety. Interrater reliability for anger, sadness, and general alertness could not be calculated because of sparse distribution of responses across categories. Periodically Kappa was calculated to check for observer drift. Interrater reliability declined at the midpoint of the study to .64 for pleasure and .21 for anxiety and. Prompt retraining improved Kappa to .86 and .63, respectively.

Data Analysis

Data were entered into a computer database for analysis using SAS v9 software. Data were checked for accuracy and completeness, deidentified to protect privacy, and double entered to minimize data-entry errors. Descriptive statistics were computed to obtain a demographic profile and to estimate indices of central tendency and pattern of variability for the outcome measures (i.e., CSDD, NPI-NH, FACS, QOL-AD, and OERS). A .05 level of significance was used to evaluate group differences at Weeks 7 and 10 for the variables of CSDD, QOL-AD, and OERS. A more stringent .01 level of significance was used for comparisons of the NPI-NH and FACS (social communication and basic needs communication) to reduce Type I error resulting from multiple tests on a sample of this size. The standardized mean difference statistic, d (Cohen, 1988), was calculated in two ways: (a) dividing the difference between the treatment and the control groups mean values at Week 7 by the pooled SD and (b) dividing the difference between the treatment and the control groups mean change scores (Week 7–Week 0) by the pooled SD of the change scores. As the end point most proximal to the 6-week intervention, only Week 7 values were used to calculate effect size estimates. Effect sizes are

TABLE 1. Sample Demographics and Baseline Background Characteristics and Study Variables (*N* = 56)

	TG (*n* = 28)			CG (*n* = 28)		
	Nursing Home (TG 1)	Nursing Home (TG 2)	Assisted Living Facility (TG)	Nursing Home (CG 1)	Nursing Home (CG 2)	Assisted Living Facility (CG)
	n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
	12 (21)	6 (11)	10 (18)	4 (7)	11 (20)	13 (23)
Demographic characteristics						
Gender						
Female	11 (39)	3 (11)	9 (32)	4 (14)	10 (36)	12 (43)
Male	1 (4)	3 (11)	1 (4)	0	1 (4)	1 (4)
Ethnicity						
African American	1 (4)	0	0	0	0	0
Caucasian	11 (39)	6 (21)	10 (36)	4 (14)	11 (39)	13 (46)
Marital status						
Never married	1 (4)	0	0	1 (4)	1 (4)	0
Married	3 (11)	3 (11)	0	0	2 (7)	0
Widowed	6 (21)	2 (7)	8 (29)	1 (4)	8 (29)	12 (43)
Separated/divorced	2 (7)	1 (4)	2 (7)	2 (7)	0	1 (4)
Education level[a]						
No diploma	1 (4)	2 (8)	3 (12)	1 (4)	0	1 (4)
High school	5 (19)	3 (12)	4 (15)	1 (4)	4 (15)	7 (27)
College/technical	4 (15)	0	1 (4)	2 (8)	1 (4)	5 (19)
Graduate degree	2 (8)	0	1 (4)	0	4 (15)	0

	M (SD)	*M (SD)*	*M (SD)*	TG, *M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*	CG, *M (SD)*
Background Characteristics								
Age (years)	83.55 (8.79)	80.73 (6.40)	84.89 (8.21)	83.42 (8.0)	81.73 (12.81)	87.59 (4.61)	85.43 (5.96)	85.75 (6.76)
Education (years)	13.75 (3.31)	10.00 (2.19)	11.80 (3.82)	12.25 (3.52)*	13.00 (3.46)	15.70 (3.50)	13.38 (2.22)	14.19 (3.05)*
MMSE	13.67 (4.64)	13.83 (3.71)	16.00 (2.75)	14.54 (3.88)	15.50 (4.20)	16.55 (4.95)	14.92 (3.40)	15.64 (4.09)
CIRS	1.76 (0.24)	1.65 (0.29)	1.65 (0.26)	1.70 (0.26)	1.75 (0.13)	1.69 (0.29)	1.53 (0.16)	1.62 (0.23)
Length of stay (years)	4.75 (3.25)	2.81 (2.02)	1.58 (1.29)	2.15 (1.59)	0.31 (0.16)	4.00 (2.82)	2.51 (2.30)	2.78 (2.61)
Baseline study variables								
CSDD	4.75 (3.25)	5.00 (3.35)	2.50 (1.96)		6.75 (3.77)	4.36 (4.92)	5.77 (3.77)	
Resident-rated QOL-AD	40.23 (8.41)	41.17 (8.91)	45.79 (4.86)		43.11 (9.64)	42.18 (9.00)	44.29 (3.56)	
Staff-rated QOL-AD	39.75 (6.28)	34.67 (4.13)	44.60 (4.60)		36.00 (5.72)	41.82 (9.52)	43.54 (6.54)	
NPI-NH	7.33 (9.00)	7.67 (6.31)	3.10 (3.78)		10.25 (8.18)	9.36 (14.25)	15.92 (12.24)	
Social communication	5.51 (0.92)	6.31 (1.00)	6.20 (0.63)		4.99 (1.65)	5.92 (0.94)	5.51 (0.94)	
Basic needs communication	5.70 (0.84)	6.31 (0.78)	6.61 (0.38)		5.46 (0.55)	6.00 (0.69)	5.97 (0.89)	
OERS pleasure	2.00 (1.04)	1.83 (0.41)	2.00 (1.15)		1.25 (0.50)	2.00 (1.00)	2.50 (1.09)	

Note. Percentage total values may not add to 100% because of rounding. TG = treatment group; CG = control group; MMSE = Mini-Mental State Examination; CIRS = Cumulative Illness Rating Scale; CSDD = Cornell Scale for Depression in Dementia; QOL-AD = Quality of Life—Alzheimer's Disease; NPI-NH = Neuropsychiatric Inventory—Nursing Home Version; OERS = Observed Emotion Rating Scale.
[a]Education level was missing on four participants.
[b]See Table 2 for baseline group mean values.
*$p < .05$, Wilcoxon rank sum test (two-sided).

interpreted as small (.20), medium (.50), and large (.80; Cohen, 1988).

A repeated measures analysis of covariance consisted of one between-subjects factor (group) and one within-subjects factor (time), with the baseline value of the outcome measure as the covariate. To account for potential dependencies in the responses from subjects within one facility, we treated the facility (cohort) as a random effect in group comparisons. In addition, MMSE, CIRS, and length of stay were included in the models as covariates if significantly correlated with the outcome variable of interest. Least squares means was used to compare the groups at each period. In the case of model residuals that did not meet the criteria of normal distribution, the Cochran–Mantel–Haenszel test was used to test between-group differences at Weeks 7 and 10, adjusting for the baseline values of the outcome variables and covariates found to be significant in preliminary analyses.

Results

Of the 178 PWD who were invited to participate in the 6-week intervention, 123 family members and legal guardians and one resident with independent decision-making status (who was excluded for MMSE > 23) agreed to follow-up contact. Of the 124 potential participants who received further contact, 26 refused. Of the 98 who agreed to participate in the study, 42 did not meet inclusion criteria (reasons included MMSE > 23 or < 11, acute illness or hospitalization, lack of dementia diagnosis, and discharge from facility). This left 56 participants (28 in the treatment condition and 28 in the control condition) for which baseline data were collected. During Week 2, a treatment participant was removed from the study because of disruptive behavior, and a control participant was withdrawn on the basis of a family member's objection to depression screening. During Week 10, 3 of the 54 remaining participants had exited the study: 2 control participants developed CSDD scores > 12 and 1 treatment participant was hospitalized.

The sample was largely elderly, White women with moderate cognitive impairment. Sample demographics, baseline background characteristics, and study variables are presented in Table 1. The mean MMSE score for the assisted living treatment group was 16.00, whereas mean scores were 13.67 and 13.86 for the nursing home treatment groups. There were no significant differences between groups on baseline background characteristics or study variables, with the exception that the control group had significantly higher years of education. Attendance at TimeSlips sessions averaged 84% overall: 94% and 69% at the first and second nursing home, respectively, and 83% at the assisted living facility.

TABLE 2. Mean Scores by Time for Treatment and Control Groups With Standardized Mean Difference Statistics for Week 7

	Week 0	Week 3	Week 6	Week 7	Week 10	Effect Size at Week 7	Effect Size of Change Score (Week 7–Week 0)
CSDD							
Control	5.36 ± 4.20			3.63 ± 3.64	3.00 ± 2.47		
Treatment	4.00 ± 2.99			4.30 ± 4.56	4.73 ± 3.27	0.17	0.45
Resident-rated QOL-AD							
Control	43.29 ± 6.85			45.16 ± 5.35	44.20 ± 5.91		
Treatment	42.41 ± 7.62			44.98 ± 6.37	44.12 ± 5.98	0.031	0.14
Staff-rated QOL-AD							
Control	41.79 ± 7.91			41.89 ± 7.28	43.48 ± 7.18		
Treatment	40.39 ± 6.35			39.85 ± 8.07	39.15 ± 8.50	0.27	0.009
NPI-NH							
Control	12.54 ± 12.63			8.00 ± 8.91	5.12 ± 6.25		
Treatment	5.89 ± 7.05			6.30 ± 8.14	10.27 ± 12.20	0.18	0.49
Social communication							
Control	5.60 ± 1.06			5.35 ± 1.24	5.52 ± 1.22		
Treatment	5.93 ± 0.90			5.87 ± 1.04	5.62 ± 1.14	0.49	0.29
Basic needs communication							
Control	5.91 ± 0.77			5.66 ± 1.23	5.76 ± 1.16		
Treatment	6.16 ± 0.79			6.14 ± 0.92	5.96 ± 1.27	0.43	0.29
OERS pleasure							
Control	2.11 ± 1.05	2.04 ± 0.90	2.52 ± 1.22	1.73 ± 0.78	1.84 ± 0.90		
Treatment	1.96 ± 0.96	3.42 ± 0.93	3.48 ± 1.05	2.31 ± 1.12	2.27 ± 0.96	0.58	0.61

Note. CSDD = Cornell Scale for Depression in Dementia; QOL-AD = Quality of Life—Alzheimer's Disease; NPI-NH = Neuropsychiatric Inventory—Nursing Home Version; OERS = Observed Emotion Rating Scale.

The raw mean and SD values for the treatment and control groups on the major study variables as well as effect size estimates for Week 7 are displayed in Table 2. Scores on the CSDD and the NPI-NH improved over time for the control group; therefore, Week 7 effect size estimates on these outcomes reflect beneficial change of the control group and do not represent the intervention effect. However, close to medium effect sizes were found for social and basic needs communication, reflecting better communication skills for the treatment group at Week 7. A medium effect size was found for OERS pleasure scores.

Results of the repeated measures analysis of covariance are presented in Table 3. Significant Group × Time interactions were found for the outcomes of NPI-NH, social communication, and OERS. After adjusting for baseline and MMSE, OERS pleasure scores at Weeks 3, 6, and 7 were significantly higher for the treatment group than for the control group. Social communication scores were higher for the treatment group at Week 7, although this difference did

not reach statistical significance. Scores on the NPI-NH favored the control group at Week 10, but this difference was not statistically significant. Although there was no significant interaction effect for the CSDD, the control group had significantly lower CSDD scores than the treatment group at Week 10 after adjusting for baseline and CIRS scores. Because of extreme sparseness in distribution for OERS anxiety, sadness, anger, and general alertness data, further analysis was not considered (e.g., on only 3 of 261 observations for general alertness were ratings other than 4 or 5 given).

Discussion

Results of the current study suggest that the 6-week program of TimeSlips was associated with increased expressions of pleasure and better communication for the treatment group compared with the control group. In addition, the treatment group exhibited significantly higher pleasure during the intervention, and this effect persisted at Week 7 follow-up.

TABLE 3. Least Square Means by Time for Treatment and Control Groups on the Basis of Repeated Measures Analysis of Covariance

	Week 3	Week 6	Week 7	Week 10	$F(df)$, Time Effect	$F(df)$, Group × Time Effect
CSDD[a]						
Control			3.38 (0.70)	3.24 (0.57)	0.55 (1, 95)	1.21 (1, 95)
Treatment			4.38 (0.70)	5.11 (0.56)**		
Resident-rated QOL-AD						
Control			44.39 (0.95)	43.74 (0.88)	2.06 (1, 93)	0.13 (1, 93)
Treatment			44.67 (0.97)	43.59 (0.87)		
Staff-rated QOL-AD[b]						
Control			41.37 (1.01)	41.79 (1.10)	0.29 (1, 95)	1.65 (1, 95)
Treatment			40.91 (1.01)	39.89 (1.09)		
NPI-NH[c]						
Control			7.48 (2.09)	5.75 (2.24)	1.25 (1, 95)	6.87 (1, 95)*
Treatment			6.90 (2.05)	11.20 (2.21)		
Social communication[a,c]						
Control			5.44 (0.13)	5.55 (0.15)	2.50 (1, 94)	14.60 (1, 94)***
Treatment			5.82 (0.13)	5.54 (0.15)		
Basic needs communication[a,c]						
Control			5.73 (0.17)	5.76 (0.17)	1.05 (1, 94)	1.82 (1, 94)
Treatment			6.10 (0.17)	5.89 (0.17)		
OERS pleasure[c]						
Control	2.03 (0.17)	2.41 (0.20)	1.68 (0.19)	1.78 (0.19)	17.24 (3, 190)***	4.0 (3, 190)**
Treatment	3.44 (0.17)***	3.55 (0.20)***	2.34 (0.18)*	2.31 (0.18)		

Note. Means are adjusted for baseline score and covariates found to be significant in preliminary testing. Standard errors are in parentheses. Significant differences between control and treatment group means at Weeks 3, 6, 7, and 10 are noted by treatment group asterisks. Except for the outcomes of resident-rated QOL-AD and staff-rated QOL-AD, *p* values for between-group comparisons were based on the Cochran–Mantel–Haenszel test. CSDD = Cornell Scale for Depression in Dementia; QOL-AD = Quality of Life—Alzheimer's Disease; NPI-NH = Neuropsychiatric Inventory—Nursing Home Version; OERS = Observed Emotion Rating Scale.
[a]Modified Cumulative Illness Rating Scale as covariate. [b]Length of stay as covariate. [c]Mini-Mental State Examination as covariate.
*$p < .05$.
**$p < .01$.
***$p < .001$.

It is encouraging that social and basic needs communication scores for the treatment group remained stable through Week 7, declining only at Week 10, long after the last TimeSlips session. Spontaneous verbal communication and interpersonal dialogue, both of which are reflected in FACS scores, appear to be upheld by the positive interactions prompted by TimeSlips, specifically recognition, facilitation, and creation. The apparent increase in pleasure manifested during TS may be attributed to two other types of positive interactions, celebration and play. As described by Kitwood (1997), a steady stream of positive interactions is needed to meet the psychological needs of PWD. These findings of benefit, limited to the duration of the TimeSlips intervention, suggest that cognitively impaired persons may need continual reinforcement to sustain gains. Finally, the treatment group, compared with the control group, had significantly poorer scores on the CSDD at Week 10; however, mean depression scores were not in the clinically significant range for either group throughout the study.

This study expanded on prior research by Fritsch et al. (2009), who did not find a significant difference in observed pleasure between treatment versus control groups, although they did observe a significant group difference in general alertness favoring the treatment group. This discrepancy may be partly explained by differences in study design. Specifically, Fritsch et al. observed residents across a variety of activities, whereas participants in this study were observed only during mealtime and TimeSlips, activities that naturally stimulate general alertness. Fritsch et al. remarked that the nonsignificant difference in pleasure between the control and the treatment homes ran contrary to their hypothesis but did not offer further explanation. It may have been the case that activities in control homes were equally pleasurable for residents, albeit not as activating or engaging.

During TimeSlips, PWD have the opportunity to exercise creative potentials and remaining strengths and to experience moments of recognition, facilitation, creation, celebration, and play. By design, TimeSlips encourages PWD to become active participants, as opposed to passive recipients, of the program. Increasing opportunities for meaningful activities and person-enhancing interactions, as is accomplished by TimeSlips, promotes the positive psychosocial environment foundational to person-centered care.

In considering potential limitations of this pilot study, several features of the sample may be relevant in interpreting study findings. First, in part because of the variety of facilities where recruitment occurred, participants in the study had a range of cognitive impairment. The mean MMSE for the assisted living treatment group was higher than for the two nursing home treatment groups, although this difference could not be statistically analyzed because of sample size. Several interested assisted living residents could not enroll in the study because of MMSE scores greater than 23. The opposite was true in nursing home residents, whose MMSE scores were frequently 10 or less. On the one hand, testing TimeSlips in both nursing home and assisted living residents enhances the external validity of study findings and suggests that this type of activity can be delivered in various settings. On the other hand, given the range in cognitive functioning among study participants, it may be that outcomes important for participants with more advanced dementia, such as

neuropsychiatric symptoms and communication skills, were not appropriate for participants with milder disease.

Second, the relatively small group sizes (range = 25–28) may not have provided sufficient power to detect significant differences. In addition, it is a limitation of the study design that participants were not randomly assigned within the same facility to a treatment or an attention-control group. As such, the active ingredient of TimeSlips could not be isolated from unintended effects secondary to increased attention and socialization in treatment participants, nor from effects of other activity experiences for control participants. Finally, the study sample, although representative of nursing home and assisted living residents in central Missouri, lacked ethnic and racial diversity, a factor that limits the generalizability of results.

Because this was a pilot study, facility staff were not involved in delivering the program, and it is not possible to address whether it was feasible for staff to continue TimeSlips after the study ended. The study of TimeSlips by Fritsch et al. (2009) included training of treatment-home staff for determining if the interactions between staff and residents during TimeSlips would change the ways in which staff viewed and interacted with residents. They found that staff in treatment homes interacted more frequently with and held more positive views of PWD. This is notable because staff who interact with residents in varied contexts may understand residents' capacities more fully, which is important for person-centered care.

Despite limitations, this study suggests that, as a program designed for group participation, TimeSlips may be welcomed by residents. Supplies needed to conduct storytelling sessions are inexpensive, making TimeSlips an affordable activity in terms of supply resources. TimeSlips is acceptable to persons with mild to moderate dementia and provides a stimulating alternative to typical activities in long-term care facilities. Activities like TimeSlips that build social confidence rather than devalue individuality are fundamental to good dementia care. ▼

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