

Adaptive Music/Dance Therapy:
An activity to improve quality of life in
Long Term Care Settings

Texas Long Term Care Institute

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Abstract

As a result of medical advances and improved self-care, people are living longer. By 2050 government forecasts call for 86.7 million individuals aged 65 or older -- encompassing 20.6 percent of the total population. For many, advanced age is accompanied by reduction in mental capabilities and ambulatory capabilities necessitating a need for medical care and/or assistance to perform everyday activities. For the older, old (> 85 years), one of the fastest growing population segments, this often means living in an assisted living or long-term care facility. Although sadness and depression are not a normal characteristic of aging, nursing home residents are often depressed as a host of risk factors accompany aging and residency in a long-term care facility. Interventions to provide mental stimulation, overcome loneliness, foster social support, aid functional capabilities, and improve perception of care are needed for this special population cohort.

In an effort to address these issues we initiated a pilot study of an intervention that blended active music therapy and modified danced therapy. Twenty-two residents from two senior facilities (19 skilled residents and 3 from an Assisted Living setting) were assessed. All skilled residents were wheel chair bound while assisted living residents were ambulatory. Three residents dropped from the study. Twice a week, 45-60 minute activity sessions were performed for 8 weeks. Pre-and post-study assessment of cognitive status, depression symptoms, and functional abilities were performed. Regression analysis discovered mild improvements in mental status and cognitive abilities and a significant improvement in depression scores ($p = .000$).

Introduction

As the world enters the second decade of the 21st century, people are living longer with average life expectancies approaching 80 years of age. By 2050 government forecasts call for 86.7 million individuals aged 65 or older -- encompassing 20.6 percent of the total population (Federal Interagency Forum on Aging Related Statistics, 2008). The demographic transformation of America will convey a new appreciation of aging and quality of life for the old. Unfortunately, in today's era, a longer life is often associated with a host of physical and mental health challenges. For many, advanced age is accompanied by a need for medical care and/or assistance to perform everyday activities. Among the older, old (> 85 years) this often means living in an assisted living or long-term care facility.

Within this milieu seniors typically cope with a variety of chronic medical conditions including heart disease, arthritis, chronic obstructive pulmonary disease, Parkinson disease, diabetes, or cancer. Co-morbidities are common. The capacity to perform activities of daily living such as walking, dressing, toileting, and eating is often compromised. Dementia is one of the leading causes of institutionalization with disorders ranging from mild cognitive impairment to advanced Alzheimer's. Depression is common among long-term care residents and is often associated with aging, chronic disease, social isolation, loneliness, lack of social support and perceived inadequacy of care. Other mitigating factors include declining functional skills, the transition to a foreign environment and the loss of personal life routines. Although depression is common among long-term care residents, the disorder is often under-diagnosed. In this setting, depression

is often confused with dementia impeding appropriate care (National Association of Mental Health-NIH). Overall, care for a nursing home resident is complex as individuals present a wide array of physical and cognitive abilities and limitations.

Fundamentally, transitioning to a long-term care facility is a significant life crossroad as diminishing mental and physical skills place individuals in an unfamiliar dependent state. Specialized interventions are necessary to provide physical and cognitive stimulation to help the elder experience contentment and fulfillment. As such, inventive strategies to promote health and well-being are necessary. Improving quality of life among long-term care (LTC) residents is a topic of considerable attention for consumers, providers, public officials and policy advocates (Miller, Mor, & Clark, 2009). Nursing home reform is not a new initiative as The Omnibus Budget Reconciliation Act of 1987 (OBRA 87) required nursing homes to “attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident”. However, pursuant to resource scarcity, limited staffing, and a lack of true direction toward reforming long-term care, actualization of an improved quality of life for residents remains a difficult challenge.

Quality of life is a difficult construct as current assessment tools are directed at measuring and monitoring condition-specific or clinical information -- more so than a generic assessment of an individual’s perception of their life experience. Examples include current quality assessments of an individual’s ability to perform activities of daily living (ADLs), existence and status of pressure ulcers, episodes of hospitalization and a variety of additional clinical measures (Mor, 2005). The Minimum Data Set (MDS 2.0) assessment tool provides information to report quality measures and quality indicators, and is used in many states to determine Medicaid reimbursement rates. Mixed use of the instrument as a

quality indicator and as a method to determine reimbursement may confound quality of life assessment. Researchers have shown that documentation of quality indicators based on functional and clinical criteria can be skewed by state policy that utilizes a case-mix methodology (Bellows & Halpin, 2008). Many believe existing clinical assessments do not capture the multi-dimensional concept of quality of life that includes self-esteem/awareness, social context and mental health (Scholzel-Dorenbos et al., 2006). Research also suggests residential quality of care is also linked to caregiver training and job-satisfaction (Mor, 2005).

Despite the limitations of current methods to document quality, use of assessment tools have been beneficial in advancing transparency of nursing home care. Transition into a long-term care facility is often a complex adjustment as individuals may present a variety of physical and mental disability. Upon admission, each resident receives a copious multilevel assessment by a team of professionals including Registered Nurses (RN's), Social Workers, Dieticians, and Physical, Occupational, and Speech Therapists. Legislative policies pertaining to OBRA '87 have significantly improved access to skilled nursing, physical, occupational and speech therapy. Skilled services are utilized to help individuals stabilize and regain functional skills after a medical event or decline in status. However, skilled therapy and skilled nursing are limited as strict eligibility criteria allow only short-term rehabilitation. Individuals often need maintenance therapy to continue and or maintain functional and cognitive abilities. All residents benefit from social activities that serve to engage and challenge physical and psychosocial well-being. Within a long-term care facility, activity directors are called upon to provide structured planned activities for the social engagement and enjoyment of residents. The weekly schedule of activities

provides residents a routine of events in which they can participate for mental and physical stimulation. This component of long-term care is often underappreciated and underfunded. However, the platform is an area of opportunity as expanded programming can help improve mood, maintain functional skills, and preserve cognitive status as well as reducing depression – all factors essential for enhanced quality of life for long-term care residents.

Efforts to enact cultural change in nursing homes and improve residential perception of quality of life hinge on addressing psychosocial domains of care. Improved identification and therapeutic intervention for cognitive impairment, depression, and decline in functional status are a key concern. When planning therapeutic activities, innovative approaches are necessary to capture the attention and gain the participation of long-term care residents. Given the life-long residential status of residents, all will inevitably experience declines in functional abilities, mental capabilities, and health. The challenge therein is the development of activities or programs -- acceptable to the elderly cohort, which can be continued throughout the course of care. This pilot study assesses the efficacy of an innovative approach to provide cognitive and physical stimulation, enhance mood and relieve depressive symptoms.

Literature Review

In the long-term care setting progressive methods to manage depression are essential to improving quality of life. Depression frequently accompanies physical, social and cognitive challenges associated with aging. According to the National Institute of Mental Health (NIMH), health professionals and individuals often erroneously accept sadness and depression as a normal sequel of senior life changes. Although depression is not a normal consequence of aging, many long-term care residents suffer from depression. Researchers have posited the risk factors or reasons for the high prevalence of depression in nursing home patients include age, pain, functional limitations, visual impairments, stroke, and loneliness, lack of social support, negative life events and perceived inadequacy of care (Jongenelis et al., 2004, p. 135). The prevalence of depression among nursing home residents may range from 6 percent to nearly 50 percent depending on the degree of severity (Jones, Marcantonio, & Rabinowitz, 2003; Lanz, 2003; Jongenelis et al., 2004). Symptoms of depression often accompany chronic illness such as diabetes, heart disease, cancer and Parkinson's. The depressive symptoms may be undertreated as they are viewed as co-morbid to the health condition (Lebowitz et al., 1997).

Research suggests depression is associated with inferior outcomes for cardiovascular conditions, diabetes and rehabilitation programs (Blazer, 2003). Additionally, individuals with depression are more likely to experience falls (Cesari et al., 2002) and although debatable, depression is generally linked to increased mortality among seniors (Schultz et al., 2000). Significantly, depression is often confused with dementia, the number one reason for institutionalization among the elderly with 50 – 80 percent of elderly nursing home residents displaying some aspects of dementia ((Teitelbaum,

Ginsburg, & Hopkins, 1991; The Merck Manual of Geriatrics, 2005). The relationship between depression and dementia is complex as depression can present symptoms often attributed to dementia including cognitive impairment and decreased functional skills (The Merck Manual of Geriatrics, 2005, Chapter 40). The inability to distinguish depression symptoms in residents with dementia has contributed to inadequate treatment of depression (Samuels, 2002, American Association of Geriatric Psychiatry).

Regardless of the cause, the incidence of depression is significantly higher among long-term care residents than community-dwelling elderly (Jongenelis et al., 2004). Failing to attend to depressive disorders can exacerbate existing conditions and may delay outcomes. Conversely, overtreatment of depression can dull cognition and impede physical functions (Lanz, 2003). Despite the high prevalence of depression among long-term care residents, treatment for the condition has been mixed with reports of under treatment, as well as inappropriate treatment (Lanz, 2003; Jones et al., 2003). Improper treatment of depression is often associated with polypharmacy -- duplicate and unnecessary pharmaceutical therapy often prescribed for seniors- a new approach to aid seniors is indicated. Polypharmacy is a recognized danger for seniors as an elder is more sensitive to medications and at risk for adverse pharmaceutical interactions (Wooten & Galavis, August 2005). As such, experts call for nonpharmacological approaches that include psychosocial stimulation, behavioral therapy and activity programs to improve the emotional well-being of nursing home residents (Doody et al., 2001; Samuels, 2002; Jongenelis et al., 2004). The efforts are essential as functional limitations, depression, memory impairments and Alzheimer's are prevalent among the elderly. Efforts to improve cognitive status, prevent

or lessen depression, and improve or maintain functional mobility have included activities empowered by music, dance, and sensory stimulation.

Researchers believe a non-pharmacological approach to increase physical and cognitive functioning should include active group participation, communications, and movement (Ashida, 2000). Teitelbaum et al., (1991) proposed that social stimulations and a need for special programs could help decrease further severity of cognitive impairments in patients. A psychosocial activity to address depression and cognitive impairments includes use of dance movement therapy and music therapy. Throughout humanity, dance and rhythmic movements have been used to express and modify emotions with modern Dance/Movement Therapy beginning in the early 1950s (Hokkanen et al., 2003). The America Dance Therapy Association has defined Dance Movement Therapy (DMT) as the “use of movement as a process which furthers physical and emotional integration of an individual” (Sandel, 1975, p. 439). Dance Movement Therapy (DMT) combining music, exercise, and sensory stimulation has been reported as being an effective non-pharmacological treatment for improving cognition and behavior among individuals with dementia (Hokkanen et al., 2008).

Ritter & Graff (1996) conducted a meta-analysis on the effects of DMT in different populations including children, elderly, and the mentally ill. They concluded DMT could be an effective intervention for disorders such as anxiety, depression, and body image although well designed experiments to assess the value of DMT are absent. DMT accomplishes active range of motion exercises for the extremity and trunk potentially improving strength and flexibility thereby maintaining or improving the ability to perform activities of daily living as well as mitigating the chance of falls. Dance programs

incorporate elements of expression, relaxation, interaction and body-awareness (Ritter & Graff, 1996). Psychosocial experiences and expressing feelings and emotions can also be evoked with the use of the DMT as the activity involves group sessions allowing participants an opportunity to communicate and share their emotions with others (Palo-Bengtsson & Ekman, 2002). The use of nonverbal and verbal communication may be seen within the group and it offers the elderly an opportunity to connect with others who are at the same stage of life. (Fersh 1980). As such, DMT provides an accessible format for elderly to receive physical and sensory stimulation (Haboush, Floyd, Caron, LaSota, & Alvarez, 2006; Hanser & Thompson, 1994; Hokkanen et al., 2008; Koger, Chapin, & Brotons, 1999; Kydd, 2001; Lima & Vieira, 2007; Palo-Bengtsson & Ekman, 1997).

A review of social dance among community dwelling and long-term care residing seniors suggest the activity provides psychosocial benefits. In some studies, dance intervention involved specific, dance lessons for senior community-dwellers. Ballroom dance instruction was found to create a “culture of inclusion” among seniors, which may in turn “improve their quality of life” and provide a stimulus to reminiscence (Lima & Vieira, 2007, pgs. 140-141). Ballroom dance for individuals diagnosed with geriatric depression improved self-efficacy and reduced hopelessness among community dwellers as well as (Haboush et al., 2006). In the nursing home setting, social dance to improve care for residents presenting with a diagnosis of dementia has been found to offer a variety of benefits. In a series of studies, Palo-Bengtsson found social dancing improved residents’ physical activity, supported spontaneous activity, and stimulated individuals to communicate with each other (Palo-Bengtsson & Ekman, 1997; Palo-Bengtsson, Winblad, & Ekman, 1998; Palo-Bengtsson & Ekman, 2002). In another investigation, Hokkanen

suggests DMT may serve as an option to treat dementia, as the intervention addresses cognition and self-care activities (Hokkanen et al., 2008, p. 772). Social dance is viewed as a method to support intellectual, emotional, and motor functions of nursing home residents presenting with a diagnosis of dementia (Palo-Bengtsson, Winblad, & Ekman, 1998; Palo-Bengtsson & Ekman, 1997; Watson, 1997; Hokkanen et al., 2003).

Dance movement activities often use a variety of musical selections matched to an individual's life experience. Some of the benefits associated with dance may stem from the music provided in the intervention. For example, ballroom dance instruction uses time period music that is familiar to older adults and may increase comfort and enjoyment (Haboush et al., 2006). Some researchers believe music therapy could be a non-invasive and non-pharmacological technique to help individuals cope with depression, dementia, and any other cognitive deficits (Brotons, Koger, & Pickett-Cooper, 1997). Music therapy is often used as a gateway to communication – via stimulation of emotional memories -- when verbal communication is faltering in an individual. Among demented individuals, the receptivity of music may remain until the late stages of the disease (Adridge, 1996; Sambandham & Schirm, 1995). A recent meta-analysis reviews five studies that suggest music therapy was effective for diminishing the behavioral and cognitive problems and/or improve social and emotional functioning (Vink, Birks, Bruinsma, & Scholten, 2009). However, the review falls short of fully endorsing musical intervention because of poor study methods.

Music therapy has been used to reduce clinical disability and improve quality of life among individuals with Parkinson's disease. Researchers have hypothesized that active musical intervention stimulated different sensory pathways to obtain motor and

emotional responses (Pacchetti et al., 2000). Active music therapy is described by engagement by the patient or resident including dancing, singing, or playing an instrument as opposed to passive music therapy, an activity generally used to produce a state of mental relaxation while the individual is at rest (Pacchetti et al., 2000). Music as therapy has been shown to promote the well-being of elderly diagnosed with Alzheimer's disease (AD). In one review, Sambandham & Schirm (1995) report music intervention resulted in behaviors not normally seen in patients with AD including smiling, laughing, crying, clapping tapping and dancing. Music therapy also has been found to maintain and improved active involvement, emotional functioning and cognitive skills among individual with a diagnosis of dementia (Koger et al., 1999). Reminiscence music has been studied as a method to relieve depressed symptoms in elderly people with dementia. In two residential care facilities, researchers discovered reminiscence focused music sessions provided older adults diagnosed with some form of dementia an opportunity for social interaction, a setting to share memories and a setting to improve self-image (Ashida, 2000). Homebound individuals experiencing signs of depression, anxiety, or distress responded well to music therapy with improvement in standardized tests maintained over a 9-month follow-up period (Hanser & Thompson, 1994).

Dance movement therapy (via social dancing) and music therapy has been found to increase social interaction, decrease anxiety, enhance communication, and stimulate physical activity within the elderly population (Ritter & Low-Graff 1996). The debilitating effects of depression, dementia, and Alzheimer's disease may be mitigated when dance or music therapy sessions are employed (Palo-Bengtsson, Winblad, & Ekman, 1998). In addition, some researchers proffer dance movement therapy as a method to reverse or at

least stabilize cognitive changes associated with aging (Ashley & Crenan 1993). Increased physical activity improves strength and range of motion and may enhance the ability to perform activities of daily living.

Replication and expansion of dance/movement and music therapy to non-ambulatory or wheelchair bound residents of long-term care facilities represents an opportunity to assess a non-pharmacological intervention to improve functional abilities, stimulate cognition and mitigate or reverse depression.

Methods

Study Sample

This pilot-study assessed a new activity to promote health and improve quality of life among residents of two central Texas long-term care facilities. Participation in the study was voluntary with membership representing the residential population of the respective facilities. Inclusion criteria included the ability to follow simple commands and a score of greater than five on the Mini-Mental State Examination.

Flyers, bulletin board postings and word-of-mouth discussion about the study with facility professionals served as the recruitment methodology. The researcher or an appointed member of the facility (R.N., Social Worker) explained the format of study – active music therapy and modified danced therapy -- with participants and their family. Study objectives and potential risks were identified and discussed. Upon agreement to participate in the study, consent was obtained from the individual and/or his/her legal representative. The study received Texas State University Institutional Review Board approval in recognition of long-term care resident's consideration as a protected population. The Texas Long-Term Care Institute provided funding and support for the study.

Twenty-two residents (19 nursing home residents and 3 from Assisted Living) began the study. Two nursing home residents and one assisted living resident dropped from the study. All nursing home or skilled residents were wheel chair bound with significant functional limitations. Assisted living residents were ambulatory and

independent for all activities of daily living. Study intervention involved twice a week 45-60 minute activity sessions for a period of 8 weeks.

Data

This study used three quantitative data sources: (1) the 2006 Minimum Data Set 2.0 and weekly reports used to update this data set, (2) the Mini-Mental State Exam, and (3) the Cornell Scale for Depression in Dementia. Subjective commentary on program perception was obtained from informal interviews with participating residents, family members, and facility staff.

The Minimum Data Set (MDS 2.0) is a federally mandated clinical assessment of all residents in Medicare or Medicaid certified nursing homes. Demographic information including age and gender were drawn from the MDS. Weekly reports used to update residents' functional capabilities, as found in *Section G. Physical Functioning and Structural Problems* of the MDS, were analyzed in the week before study initiation and in the week after study termination. Eleven categories of functional capabilities were reviewed including the degree of assistance needed to perform bed mobility, transfer, eating and toilet use. Scoring of the weekly report was performed by the Certified Nurse Assistants (CNAs) as they have extensive daily contact with the individual. Assisted living residents were not evaluated with a MDS; all residents from the assisted living wing of the facility were independent for ADLs.

The Mini-Mental State Exam is a reliable and valid instrument used to assess cognitive impairment among older institutionalized, community dwelling, or hospitalized adults. The tool assesses five areas of cognition: orientation, registration, attention and

calculation, recall, and language. Pre and post-study assessment of mental status was performed by a nurse or social worker in the facility. The test was administered to Assisted Living and long-term care residents.

The Cornell Scale for Depression in Dementia is a reliable and valid screening instrument designed for assessing depression in elderly residents with dementia. The tool uses a comprehensive interviewing format that combines information garnered from the individual and from health professionals who have frequent contact with the resident. This format takes into consideration that self-reporting of depression indicators may not be accurate among a population with mild-moderate dementia. Scale items include mood-related signs, behavioral disturbance, physical signs, cyclic functions, and ideational disturbance with 19 subscales of psychosocial or physical behaviors informing the assessment. The instrument is designed to reveal changes in depressive signs and symptoms during the week prior to the assessment. Nurses and social workers delivered the assessment at the beginning and end of the study.

Intervention Procedures

A certified dance instructor with experience in working with residents of long-term care settings led the active music/modified dance intervention. The intervention was coordinated and promoted by Activity Director's within the two facilities. Twice a week, 45 – 60 minute sessions were delivered for 8 weeks. All sessions were performed at a secure site within the facility where ancillary furniture was removed and the surface was wood-floor, vinyl or tiled. Participants were asked to wear unrestrictive garments.

Ambulatory residents sat in supportive chairs with non-ambulatory residents in wheelchairs. Participants were positioned in close proximity circling the “dance floor”. This orientation allowed individuals to observe peers receiving instruction/intervention. Each participant received individual attention while in the center of the circle. Ambulatory residents were verbally and physically instructed in dance steps associated with American Foxtrot Basics and American Tango Basics and, if capable, an advanced step in Tango. Nonambulatory residents received individual attention in the center of the circle with the instructor twirling the resident in their wheelchair while promenading (with the individual) around the interior perimeter of the circle keeping time with the music. Wheelchair residents were provided with colorful scarf at the beginning of the intervention and were instructed to actively wave and twirl the scarf during their isolated instruction. The circular configuration of all participants allowed individuals to rest between periods of instruction while observing cohorts receive instruction. . Individuals observing the targeted dance participant from the perimeter were encouraged to twirl scarfs, clap hands and keep time with their feet (as their medical conditions allowed).

The robust music used during the session is believed to be an essential component of the intervention with selection of timepieces designed to match periods during which the residents lived during younger and middle age. Creating memory recall and reminiscing is believed to be a core foundation of the music/dance intervention. The sensory stimulation afforded by tonal vibration, musical notes, and phrasing of an arrangement is an important component of the intervention. Major notes are hypothesized to create an up beat of „happier-fun inspired emotion“ while minor notes may inspire a deeper more intimate emotion. A majority of the musical pieces were between two to four minutes length with

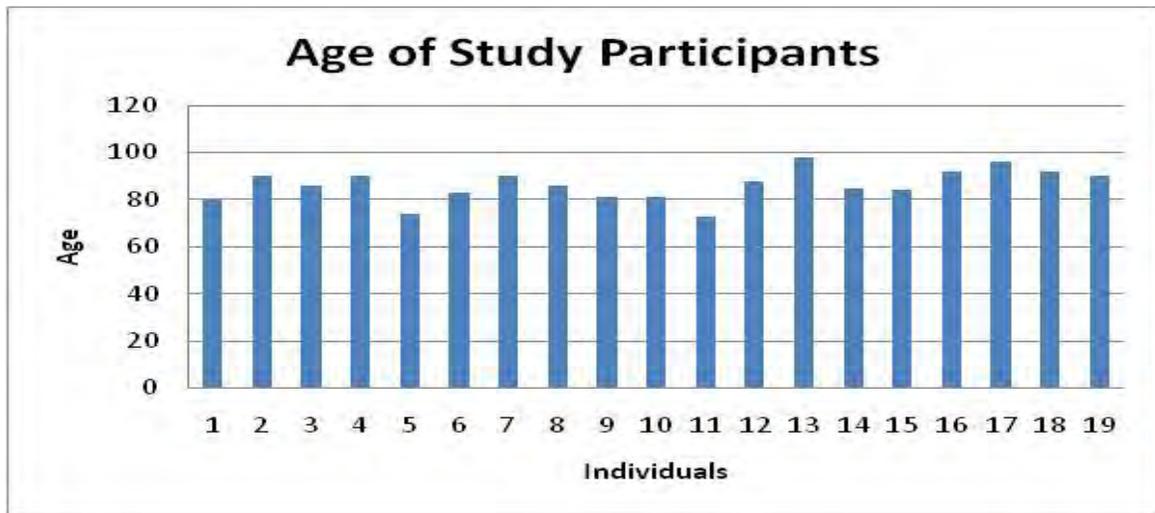
very little pause between the selections. Music selection began with upbeat tempos – “major” notes to create a warm, happy environment followed by a few ballads or “minor notes” to soften the setting and invoke emotionality. The balance of music is believed to be important so as to avoid over-stimulation at the beginning of the intervention. The sessions ended with some “major” note music leaving participants with a warm or happy-feeling. Often, the musical selections would begin with Big Band era or Ballroom pieces and as the sessions progressed, conclude with medleys from the 1950’s including jitterbug and Elvis rock and roll.

The behavior and expectations of the dance instructor approaching the participants during the study is handled with care of dignity and freedom of choice to engage the dance session. A standard protocol of questions is initiated to establish a trusted relationship with the participant and instructor. The connection between the participant and the instructor is essential. For example, the instructor always asks for permission to dance, and if the answer is “no” for whatever the reason, the instructor will accommodate and thank the resident for attending the session. Furthermore, the instructor always tells the resident that they are very happy the resident is at the session, as rejection of the physical component of the dance training does not necessarily preclude benefits garnered by sensory music and visual stimulation of peer dance. A key element of the intervention is consistency and structure. The program hinges on repetitiveness including a prescribed schedule for the sessions then structured repetitive instruction during the session. The sessions begin at a low level of intensity and duration and build up as participant conditioning and abilities allow. A resident may discontinue their participation in the study at anytime and can refuse the session on any scheduled day.

Results

Nineteen residents completed the study including 17 residing in a skilled or nursing home setting and two from an assisted living environment. The age of the residents ranged from 73 years to 98 years with an average age of 86 years. Figure 1 portrays the age of residents participating in the study.

Figure 1. Age of study participants.



Mental Status

Figure 2 presents findings from the initial assessment of cognitive skills among residents participating in the study. The maximum score for the Mini-Mental State Exam is 30. A score of 23 or lower is indicative of cognitive impairment. Per the MMSE screening tool, all residents participating in the study displayed cognitive impairment.

Figure 2. Baseline Cognitive Scores of Study Population.

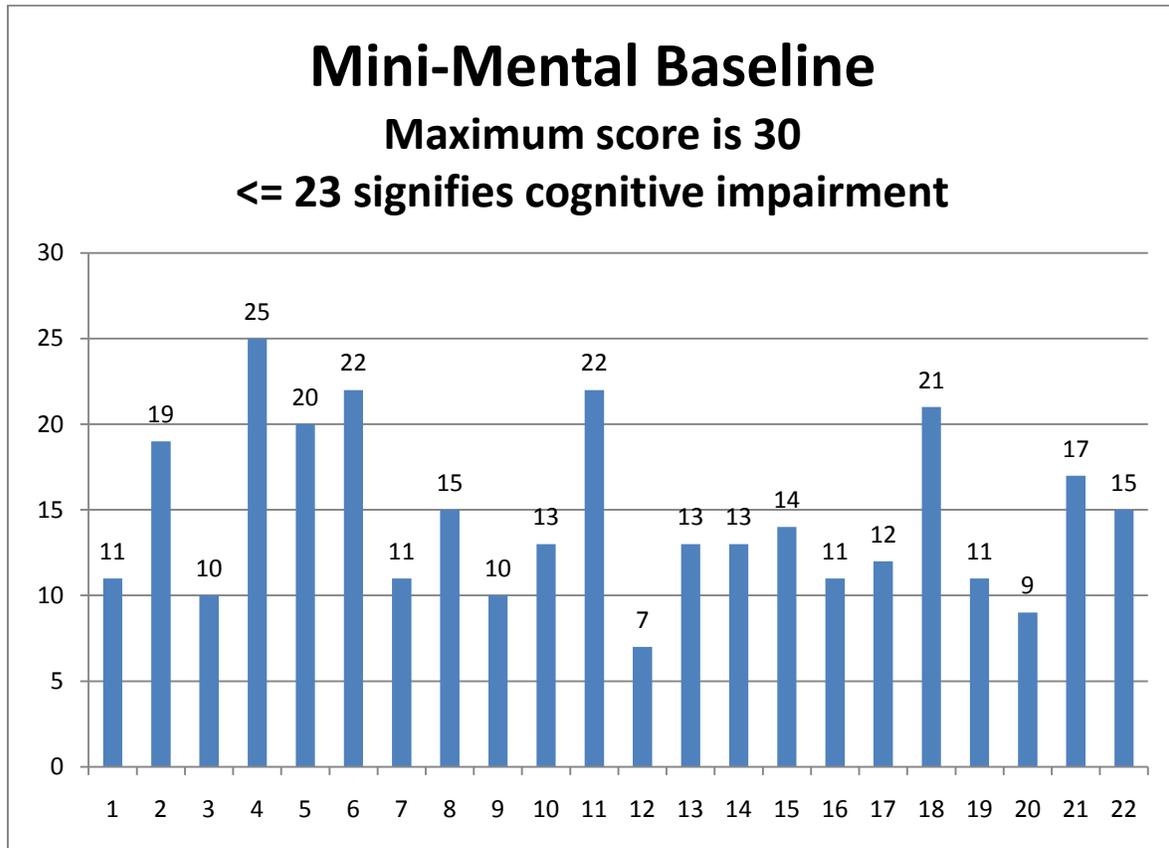
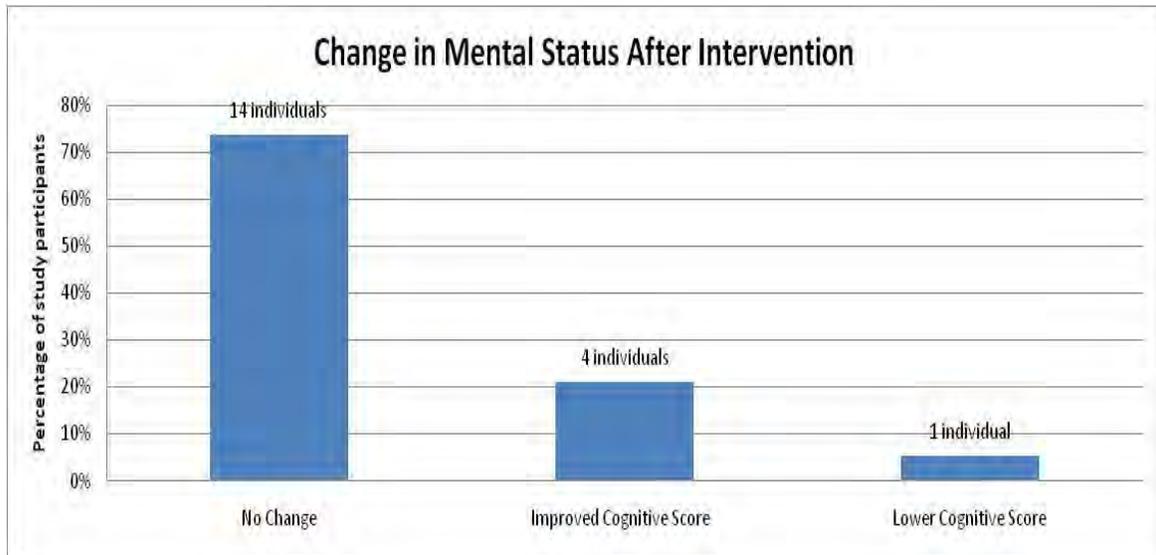


Figure 3 summarizes the group change in cognitive status after the intervention. While four individuals improved in cognitive testing, all continued to score as cognitively impaired.

Figure 3. Change in Cognitive Impairment among the Study Cohort (n=19).



Functional Status

Assessment of functional status was determined by pre and post study comparisons of weekly reports used to update care plans for nursing home residents. ADLs were not assessed for residents residing in Assisted Living quarters, as they were independent for these skills.

The data fields include documentation of the assistance a resident requires to perform an activity when the resident is actively involved with the task (ADL Self-performance); and, when completion of the activity requires caregiver support and initiative (ADL Support). Eleven activities are captured in the report including: Bed Mobility, Transfer, Walk in Room, Walk in Hall, Locomotion on Unit, Locomotion off Unit, Dressing, Eating, Toilet Use, Personal Hygiene, and Bathing. The Minimum Data Set MDS 2.0), Section G. Physical Functioning and Structural Problems describes four of

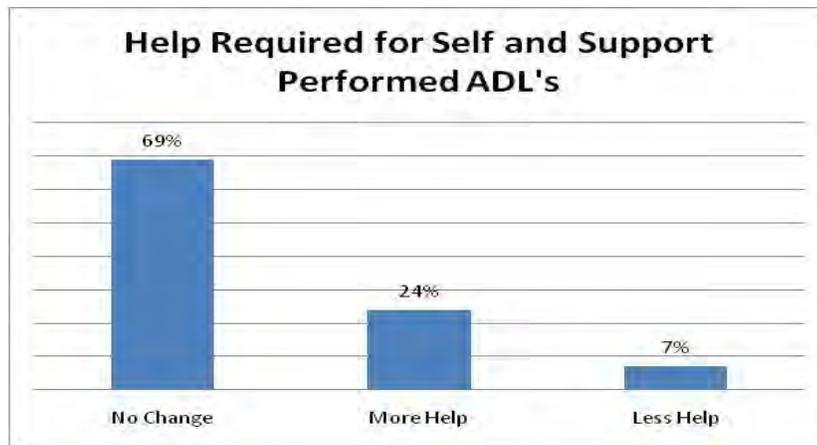
the categories as late-loss ADL's with values used to measure quality and determine case-mix reimbursement. In our analysis, approximately one quarter of the residents participating in the study had post-intervention values suggesting more assistance was required with 6 percent of study participants needing less assistance with ADL's (Table 1).

Table 1. Change in assistance required for four key indicators of ADLs (n = 17).

Key Indicators	No Change	More Help	Less Help
Bed Mobility	82%	12%	6%
Transfers	71%	24%	6%
Eating	71%	24%	6%
Toilet Use	65%	24%	12%

A review of the entire set of eleven functional skills for ADL self-performance and ADL supported ADL's revealed a similar finding for level of assistance required. Figure 4 depicts the change in assistance required for self-performed and supported ADL's from the beginning until end of the study among the residents of the long-term care facility (n=17). ADLs were not assessed for the two residents residing in assisted living, as they were independent for these skills.

Figure 4. Percentage of participants displaying a change in assistance for activities of daily living (n=17).



Depression

Regression analysis discovered a statistically significant reduction in depression symptoms ($p < .000$). Figure 5 details the depression scores at the beginning of the study. Figure 6 summarizes findings from pre and post study assessment among residents from Assisted Living ($n=2$) and Long-Term Care ($n = 17$) settings.

Ten of 19 participants (47%) displayed significant depressive symptoms prior to the study; 11 percent of residents displayed depressive symptoms after the intervention.

Figure 7 shows the summary change in depression scores ($n=19$).

Figure 5: Depression Scores at the beginning of study

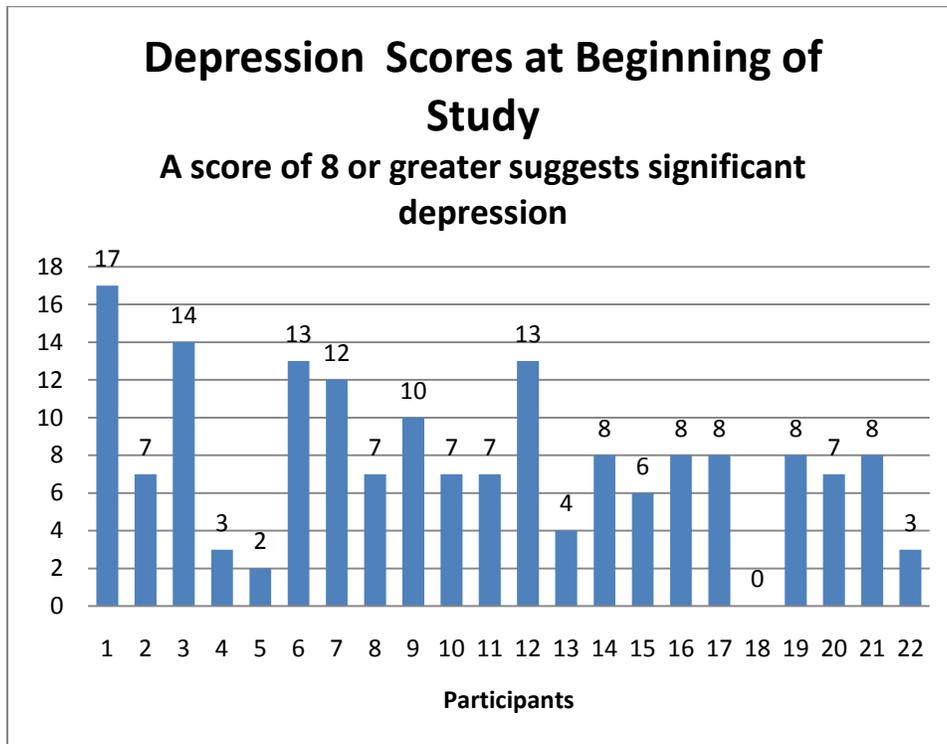


Figure 6: Depression Summary Scores pre and post study

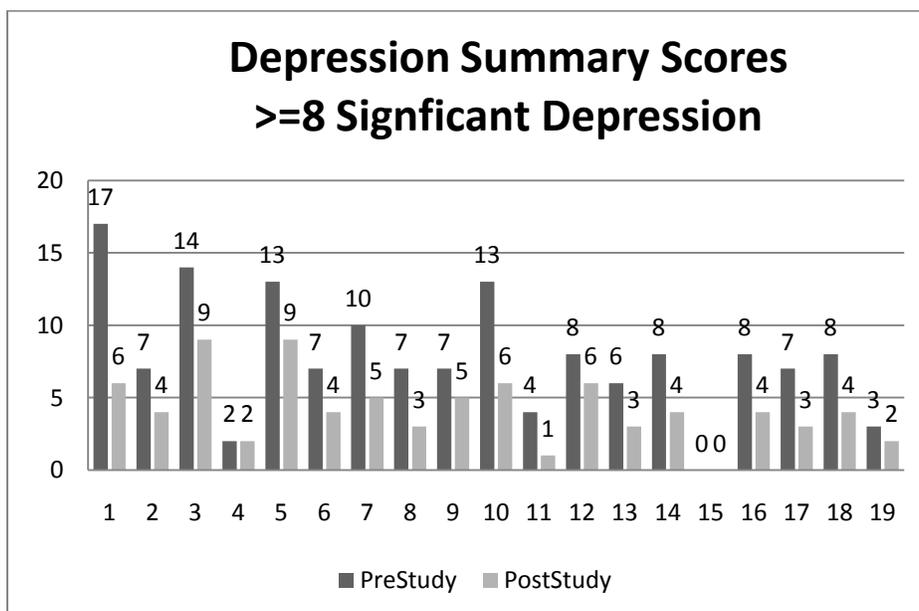
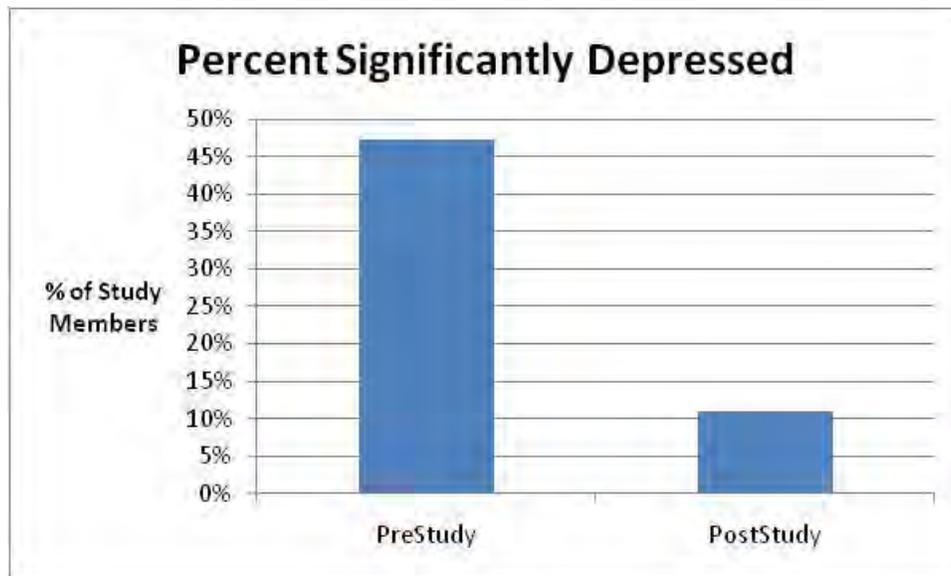
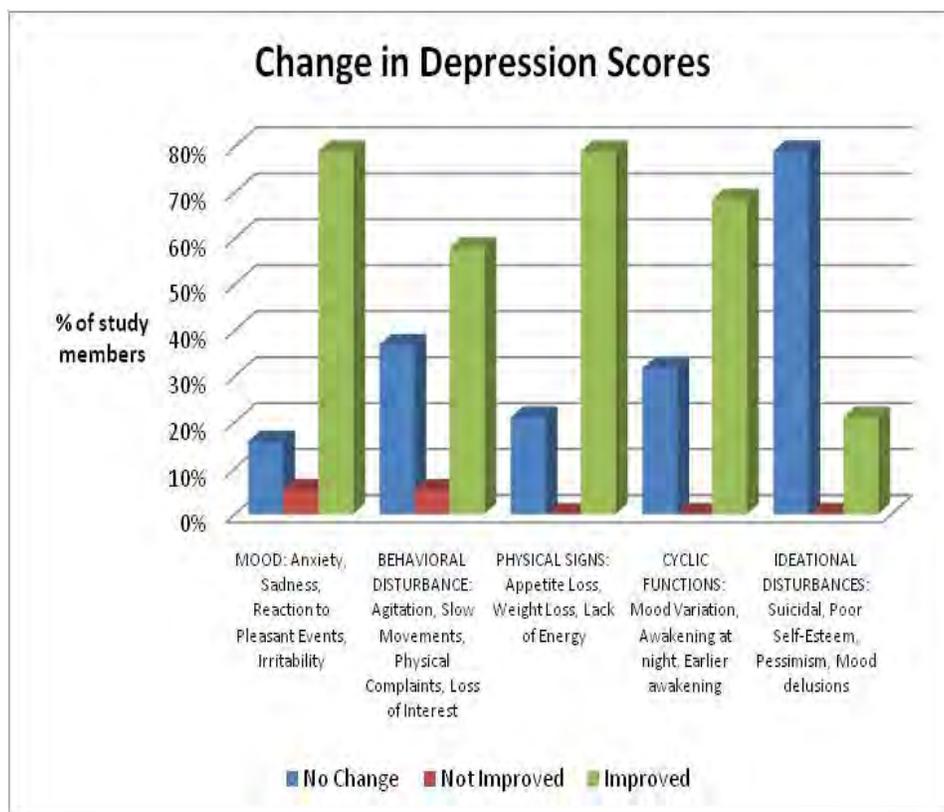


Figure 7. Summary Change in Depression Scores (n=19).



Analysis of the depression inventory subscales shows that more than half of the residents improved mood, behavior, physical signs and sleep patterns. Mood, characterized by presentations of anxiety, sadness, reaction to pleasant events and irritability; as well as physical signs such appetite, weight maintenance, and energy, were improved in more than 75 percent of the study participants. Behavioral disturbances including agitation, lethargy, physical complaints, and loss of interest along with cyclic functions comprising sleep quality were also advanced in a majority of the participants. Ideation, defined as suicidal tendencies, self-esteem, pessimism and mood delusion remained constant in over three-fourths of the participants. Figure 8 summarizes the change in depression symptoms as reflected by subscales with the assessment instrument.

Figure 8. Summary Change in Components Depression Scores (n=19).



Narrative interviews to ascertain feedback on the program were conducted with facility staff members, family members, and individual participants. Unequivocally, the interviews were positive revealing a wide-spectrum of affirmative effects associated with the intervention. For example, within the facility that included a continuum of Assisted Living and Long Term Care, the staff reported a new bond between the residents from the different levels of care. According to staff, prior to the study, residents of the Assisted Living (AL) wing rarely associated with LTC residents. Upon completion of the study, residents from AL were completely integrated into the skilled wing helping the nursing home residents with the dance/music activity as well as providing assistance with various tasks and other activities. Moreover, management personnel in both facilities commented that the intervention augmented morale and teamwork among nursing home staff.

Family interviews provided enlightened comments such as “*Mom cannot remember what she had for breakfast but she remembers the dance days,*” and “*MaMa would not normally even want to get out of bed, now she is adding makeup.*”

Participant remarks were perhaps the most revealing, “*I used to avoid the nursing home people, now I like to help them,*” (Assisted-Living resident); “*The music makes me feel better,*”; “*It (the program) makes me feel like I am the center of the universe,*” and “*Best thing this home has ever done.*”

Additional comments by nursing and administrative staff personnel capture the beneficial effects of the intervention:

- “*Resident smiles the most when talking about the dance program.*”
- “*Improves emotional wellness for everybody.*”
- “*Some residents are reclusive except for coming out to do dance therapy.*”
- “*It gives the residents something to look forward too.*”
- “*Allows residents to express their individuality.*”
- “*Motivates seniors to „gå something” out of life.*”
- “*Communication is greatly improved (for a particular resident) – she is more verbal, less combative, and more cognitively aware as she keeps*

track of scarf"s, doæ not cry as often, takes less medicine, helps with transfers, wants to look nice."

Discussion

An extended life span and the growth of senior communities/assisted living facilities have influenced long term care (LTC) demographics. Residents are often female, aged 85 or older and present diminished physical skills (non-ambulatory), reduced mental capabilities (either as a normal consequence of the aging process or mild-moderate cognitive impairment) and depression. Indeed, a decline in physical function and/or mental cognitive abilities and the need for skilled services is often the indicator for placement in LTC. Given existing resource scarcity, current health policy limits formal therapeutic interventions performed by physical, occupational or speech therapists. Unfortunately, perception of quality of life is low among this population segment.

The challenge of dealing with this cohort is well identified. A wide-range of stakeholders including consumer advocates, provider representatives, public officials and policy experts agree that organization change is necessary and that quality of care needs improvement. Despite a movement over the past decade to convert from an institutionalized environment to a more homelike environment, relatively few organizations have made the transition.

Modified dance/music therapeutic activity is a promising new activity to improve the life-experience of residents -- especially among the wheelchair bound. The intervention is an outgrowth of prior studies of dance/movement and music therapy for

ambulatory nursing home residents and/or community dwelling individuals with a diagnosis of cognitive impairment or depression. This health promotion intervention is a promising new activity that may aid functional abilities, stabilize cognition, enhance social skills and improve personal dignity. The impact of these characteristics has the potential to mitigate residential depression giving new meaning to nursing home life.

Results from the intervention suggest mental or cognitive abilities remained essentially stable or mildly improved and functional abilities remained stable or displayed mild regression. The unexpected decline in ADL scores for some individuals may be a function of using an instrument for both assessments of quality indicators and as a method to inform case-mix reimbursement rates. Recent studies have suggested use of a MDS-based Medicaid-Medicare reimbursement system may introduce unobserved variable bias. In this study, certified nurse assistants were not blinded to study participation and may have inadvertently expressed more diligence in recording the assistance required to perform functional activities. Improvements in symptoms of depression were a hallmark of the intervention, a finding that has far-reaching implications for improving the life experience of nursing home residents.

Depression is a common disorder among older adults as the condition often accompanies chronic illness, pain, negative life events, loneliness, lack of social support, and perceived inadequacy of care. The high rate of depression symptoms discovered at the beginning of this study is consistent with earlier findings that nursing home residents experience rates of depression three to four times higher than community-based elderly. As authorities have noted, despite the prevalence of depression in nursing homes, the condition is under-treated. Sadly, depression increases mortality and undermines well-being and

daily functioning. Accordingly, the resounding reduction in depression symptoms from 47 percent of participants to 11 percent; regression analysis of $p < .000$, provides strong support for this activity to be incorporated into nursing home activity programming.

The intervention is unique in providing a method to “connect” with wheel chair bound, mild-moderately cognitively impaired, depressed long-term care residents. Conceptually, program success hinged on strict attention to detail, including instruction by a certified dance professional, the music sequence, the circular arrangement of observers, the use of scarf’s to encourage UE ROM, encouragement for observers to engage by tapping of the toes and waving scarf’s, the manner by which the dance instructor presented himself and interacted with participants, as well as the method used to isolate individuals to perform dance instruction and promenade. For participants, the psychosocial benefits and social support received from peer encouragement was an important characteristic of the program. The group environment allowed participants an opportunity to communicate and share their emotions with peers reducing social isolation and loneliness. The “essence” of reminiscence music appeared to stimulate both nonverbal and verbal communication. The format allowed non-verbal residents a method to connect with others who had similar limitations as well as others peers – providing the verbally challenged resident a means by which to revel and share pleasure.

Program benefits that coincide with a reduction in depression symptoms included a reduced feeling of isolation – according to staff interviews, some participants would only initially leave their room for this activity –then, over time, the resident would become more participatory within the facility. In fact, for one resident, a change in care plan was necessary after her “social awakening,” a behavioral change that the nursing staff

accredited to this program. Additionally residents appear to have a new appreciation for the facility commending the creative programming – a factor that may improve residential perception of the care they receive thereby reducing levels of depression.

This pilot study demonstrates a non-pharmacological, low-cost approach to improve the emotional well-being of nursing home residents. The intervention may provide a partial remedy for polypharmacy and overmedication, and/or a method to provide relief for residents with depression symptoms that are under-treated. The program shows strong evidence that mental, physical and emotional well-being were augmented perhaps by diverting persisting negative thoughts that may occur if not preoccupied. Inspection of the depression subscales reveals strong improvements for anxiety, sadness, reaction to unpleasant events and irritability. Assessment also suggests a majority of residents responded with better appetites, energy levels and sleep cycles.

Given the success of the pilot, a long-term study to determine if the intervention can relieve the pharmaceutical burden of residents is indicated. If depression symptoms can continue to be mitigated with ongoing program delivery, residents may become more content and receptive of the long-term care environment. Improvement in quality of life for the non-verbal resident is also an area that would benefit from future investigation. Another area of potential investigation is exploration of how the intervention was reported to improve residential morale and blend or integrate residents receiving different levels of care. Future research may also investigate the secondary benefits of the intervention expanding on the observation that the intervention served as a bonding force to improve communication, camaraderie and cooperation within or among the nursing home staff. Additional studies may investigate if a “train-the trainer” approach, whereby the dance

instructor trains local professionals or activity directors in the program, would be an effective strategy. Finally, a qualitative research approach may help to capture the far-reaching benefits of this unique intervention.

There are several limitations associated with this pilot study. First, there may have been bias as the study sample was a non-randomized convenience sample recruited by the facility and investigators. Residents participating in the study may have personal characteristics that influenced study success although, as a subset of a nursing home population, the study benefit should apply to subsets of other long-term care facilities. As discussed, bias may have also been introduced with dual use of the MDS as a quality measure and as a method to determine reimbursement. Bias or confounding variables were present in many aspects of the study suggesting the need for future research. Areas for investigation include the effect of variables such as: the selection and sequencing of music; the method by which the instructor interacts with the participants; the twirling of a participant while they wave a scarf; and the effects of having a community of participants encircle the isolated resident while they were receive instruction.

Despite the methodological limitations of this study, the intervention suggests a new means to improve the quality of life among long-term care residents. Potential benefits include improvements in behavioral, physical, and cognitive functions among residents of long-term care facilities. This pilot initiative advances a patient-centered philosophy consistent with the “culture change” movement. The intervention is cost effective with the dance instructor contracting services to the facility on a „per session“ or monthly basis. Study participants, facility staff and resident family members appreciated

and benefited from the intervention. Importantly, the intervention is a way to support intellectual, emotional, and motor functions among a cohort of long-term care residents.

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