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Applications of Preference Assessment Procedures in Depression and Agitation Management in Elders with Dementia

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Abstract

Low levels of engagement with leisure activities are commonly seen in older adults with dementia and may lead to decreased social contact, depressed affect, and agitated behaviors. Adults with dementia often have difficulty choosing activities when asked directly about preferences due to cognitive decline, which makes it more difficult to increase their engagement levels. However, simply presenting leisure items without prior knowledge of preferences may be inefficient and may not yield desired results. Long-term care staff need more structured and efficient ways to determine individual preferences and preference assessments (structured choice making opportunities) may offer a solution. Preference assessments have been used to identify effective reinforcers for both individuals with developmental disabilities and older adults with dementia and can provide staff with a brief method for identifying enjoyable activities. This study examined the utility of using stimuli (identified from preference assessments) in behavioral management protocols with 11 elders (mean age = 85.6 years) with dementia in a long-term care setting. Behavioral outcomes of depression and agitation were evaluated at baseline and throughout the intervention. Results indicated positive improvement in behavioral symptoms in 8 of 11 participants. The utility of using preferred items in behavioral management protocols was supported for reducing agitated behaviors but was only partially supported for decreasing depressive symptoms in individuals with dementia.

Keywords

Dementia; preference assessments; depression; agitation management; long-term care

Introduction

More than 2.5 million older adults live in long-term care (LTC) settings (Hawes, Rose, & Phillips, 1999). Within LTC, approximately 42–67% of elders have some type of dementia (American Association of Retired Persons, 2001). Dementia refers to a set of neurological diseases that result in progressive decline in several areas of cognitive functioning including memory, language, visuospatial skills, and executive functioning (Flashman, Wishart, Oxman, & Saykin, 2003). Currently about 75% of individuals with dementia display at least one neuropsychiatric symptom (Lyketsos et al., 2002). Neuropsychiatric Symptoms refer to disturbances in thought, perception, mood and behavior with apathy (36%), depression (32%), and agitation/aggression (30%) being reported most often (Lyketsos et al., 2002).

Currently, depression is one of the most common disorders/neuropsychiatric symptoms seen in LTC (Williams et al., 2006). Between 30 to 50% of individuals with dementia exhibit depressive symptoms (Mast, 2005), which pose great challenges for caregivers. Individuals with dementia who exhibit depressive symptoms often are more clinically complex and have more adverse outcomes (Kales & Mellow, 2003). For example, increased frailty, poorer quality of life, greater impairment in activities of daily living (ADLs), and greater language and motor deficits (Williams et al., 2006) are commonly seen in those suffering from both depression and dementia.

Depressive symptoms can be highly problematic for caregivers, and the challenge of providing care is exacerbated when the patient shows signs of agitation. Agitation refers to “inappropriate verbal, vocal, or motor activity” (Cohen-Mansfield, Marx, & Rosenthal, 1989, p.M77) and is quite common in nursing homes, with as many as 93% of residents exhibiting agitated behaviors in a week (Lyketsos et al., 2000). Agitation is thought to result from incongruities between the person and the environment (Beck & Vogelpohl, 1999), which can occur, for example, when the individual is no longer able to process normal levels of stimulation and becomes overstimulated (Cohen-Mansfield, 2003). Agitation can take the form of aggressive behaviors (e.g., hitting, kicking), verbal aggression (e.g., swearing, berating others), inappropriate vocalizations (e.g., screaming, moaning, repetitive questioning), and inappropriate motor activity (e.g., wandering, pacing). A decreased ability to engage in activities could also lead to a decrease in sensory stimulation, thus making it more likely for agitation to occur. Agitated behaviors may occur more frequently because the behaviors result in increased sensory stimulation and are thus reinforced, increasing the likelihood of the agitated behavior occurring again in the future. Fisher, Fink, and Loomis (1993) reported that agitation and depression are two of the most difficult behaviors for caregivers to manage in LTC settings. Individuals with dementia who exhibit signs of both agitation and depression account for the greatest use of hospital-based care (Bartels et al., 2003). Therefore treating depression and agitation in older adults with dementia emerges as a means of reducing caregiver burden.

Historically, agitation was managed through use of either physical or chemical restraints (Cohen-Mansfield, Libin, & Marx, 2007). However, neither of these treatment methods effectively decreases agitation (Sink, Holden, & Yaffe, 2005). Additionally, there are negative consequences associated with restraints including decreased quality of life, adverse side effects, and increased risk of death (Schneider, Dagerman, & Insel, 2005). As agitation may place individuals at an increased risk of harm (Vance et al., 2003), alternative nonpharmacological interventions for agitation are sorely needed. Therefore, designing effective interventions for the management of behavior problems has become a global health concern (Allen-Burge, Stevens, & Burgio, 1999).

As previously mentioned, dementia results in progressive declines in multiple areas of cognitive function. One significant area involves deficits of executive functioning. Individuals with dementia lose the ability to plan and sequence events. As a result, decreased engagement in leisure activities is a common experience for older adults with dementia, whose levels of engagement wane as the disease progresses. Low levels of engagement in preferred activities may lead to limited social engagement, depressed affect, and boredom, as individuals who do not participate often become isolated from their friends, family, and peers (Engelman, Altus, & Mathews, 1999). Often, depression in individuals with dementia presents with behavioral symptoms such as anxiety and agitation, and can exacerbate cognitive impairment. In dementia care settings, offering more activities does not necessarily increase individuals' levels of engagement. However, if the program's focus is on optimizing positive behaviors, both engagement and quality of life can be increased (Wood, Harris, Snider, & Patchel, 2005).

Another cognitive domain affected in dementia with potentially severe consequences is the individual's ability to verbally communicate his or her needs. The diminished ability, and eventual inability, to verbalize preferences reduces environmental control and access to pleasurable stimuli as the individual is unable to express the preference for one stimulus over another. Caregivers face the challenge of choosing reinforcing stimuli (i.e., enjoyable objects or activities) for individuals with dementia, which can be difficult if effective reinforcers have not been identified prior to the individual's loss of the ability to verbalize his or her preferences. Simply presenting leisure items without prior knowledge of preferences may be inefficient and may not yield desired results (Staal, Pinkney, & Roane, 2003). Because of the many time demands and burdens placed on LTC staff, there is a need both for structured and efficient ways of establishing individual preferences. Preference assessments may offer a solution.

Stimulus preference assessments (SPA) have been used to identify effective reinforcers for several populations, including those with developmental disabilities (Kuhn, Deleon, Terlonge, & Goysovich, 2006). This methodology has just recently been successfully translated for use with older adults with dementia (LeBlanc, Cherup, Feliciano, & Sidener, 2006). The creation and utilization of SPA provides staff with a brief method for identifying activities that are likely to both engage and please individual patients. In effect, dementia patients' quality of life can be greatly improved by incorporating prior preferences into care routines.

SPA can be administered in multiple formats, including basing preferences on caregiver opinions (indirect) or on patient responses during brief presentations of various stimuli (direct) (Hagopian, Long, & Rush, 2004). Indirect SPA are conducted by using interviews—structured and unstructured—or checklists. Once the information is collected, the stimuli are ranked based on how much the caregiver perceives the patient to prefer each stimulus. Direct SPA involve exposing the client to stimuli for a brief period of time and recording his or her engagement with each stimulus (Hagopian et al., 2004). This process is repeated multiple times until a preference hierarchy is identified. Thus, this strategy effectively produces an “index of individual preference” for multiple stimuli (LeBlanc et al., 2006). Finally, the paired-stimulus procedure is a method of direct, approach-based preference assessment in which stimuli are presented in pairs and the client chooses one of the two. The preference hierarchy is developed by calculating the percentage of times each stimulus was selected out of all trials where it was presented (Hagopian et al., 2004). The paired-stimulus method is preferred over the multiple-stimulus presentation procedure for individuals with dementia because it reduces the likelihood of stimulus overload (Day, Carreon, & Stump, 2000).

There are multiple administration formats of direct SPA: vocal, tangible, textual, and pictorial. The most commonly used modalities are vocal and tangible. In the vocal format, participants are verbally asked, which of two activities they would prefer, and asked to “pick one”. In the tangible format, items are placed in front of the patient who is asked to choose one. In all modalities, after each choice is presented, access is given to the chosen item for a short period. In practice, the tangible modality is often the easiest to accommodate as it requires less preparatory work than either the textual or the pictorial modalities, and it is not dependent on cognitive or verbal ability. This may be why research has shown the tangible modality to be more accurate than other modalities (Conyers et al., 2002).

The present study was designed to investigate the utility of using preference assessments as part of an intervention in the management of depression and agitation in older adults with dementia. A paired-stimulus preference assessment was utilized employing the tangible modality. Behavioral outcomes were evaluated at baseline and throughout the intervention.

It was predicted that increasing engagement with preferred items would result in decreased levels of agitation and depression.

Methods

Setting and participants

This study was conducted within six residential LTC facilities for the elderly in the San Francisco Bay Area of California. These facilities were recruited as part of a larger study examining methods for disseminating evidenced based practices into community settings. Participants from this study were referred from all six facilities. Facility demographics are provided in Table 1. Therapists for this study included two master's level clinicians trained in behavioral principles and techniques (i.e., restraint free environment approach). Participants included 11 residents (10 female, 1 male) with ethnic backgrounds including 10 Caucasian and 1 Hispanic elder ($M_{age} = 85.6$ years, $SD = 5.7$, range 78–95 years). All participants had a prior clinical diagnosis of dementia (Alzheimer's type, Vascular, or NOS) made by their physicians or mental health providers at least 1 year prior to participation in the study. The reason for referral to the study included staff difficulties managing problems of depression, agitation, or both in specific residents. Residents were assessed prior to treatment initiation and weekly thereafter.

Measures

Agitation—Cohen-Mansfield Agitation Inventory-Long Form with expanded descriptions of behaviors (CMAI: Cohen-Mansfield et al., 1989) was used to assess change in overall level of agitation from baseline to the end of the evaluation period. The CMAI consists of 29 items reflecting different overt behaviors, such as wandering, spitting, verbal aggression in individuals with cognitive impairment. The frequency of the behavior is measured on a scale from 1 (does not engage in the behavior) to 7 (behavior occurs several times per hour) and refers to the 2 week period prior to the day administered. The CMAI has excellent interrater reliability with correlations of .88 and .92 in nursing home settings (Cohen-Mansfield et al., 1989). The CMAI was administered to family members (if available) or the caregiver(s) who worked most closely with the target client approximately every two weeks. Whenever possible, a second CMAI was collected for reliability purposes.

Behavioral function—The Motivation Assessment Scale (MAS: Durand, 1986) is a 16-item questionnaire designed to identify possible functions or motivators for a target behavior (in this case a specific type of agitated behavior). The purpose of functional assessment is to identify the maintaining variables for the specific elder's behavior, which are then used in identifying appropriate treatments. There are three different types of functional assessments, including indirect (informant), descriptive (focus on topography of behavior; often involve direct observation of level of behavior), and functional analysis (experimental manipulation of the environment) (Lennox & Miltenberger, 1989). Indirect assessments such as the MAS involve use of interviews, rating scales, and questionnaires to assist in the formulation of hypotheses regarding the function of the target behavior. The four possible functional categories include sensory, escape, attention, and tangible. *Sensory* refers to situations in which the person would engage in the target behavior if the person was alone or unattended for a long duration of time, or appears to get some enjoyment out of the behavior (e.g., “feels, tastes, looks, smells, and/or sounds pleasing” in some way). *Escape* refers to situations in which the person engages in the behavior immediately after a demand of some kind is made on him/her. *Attention* refers to situations in which the person engages in the behavior when the staff member is attending to someone else, when staff members stop attending to this person, or when the staff member is otherwise engaged nearby. Lastly, *tangible* refers to situations in which the person seems to engage in the behavior to gain

access to something that the resident was told they could not have (object or activity), when staff has removed an object, or the behavior stops after the person is given an object that he/she has requested. The MAS items have been found to have good interrater reliability (.66–.92) and test-retest reliability (.89–.98) (Durand & Crimmons, 1988). The MAS was used to identify possible functions of the target behavior for each person and was given to staff during baseline. The MAS was offered in both Spanish and English versions.

Mental status—The Mini Mental State Exam (Folstein, Folstein, & McHugh, 1975) is a 19-item cognitive screening measure that is commonly used to obtain a gross estimate of cognitive function. Scores below 24 are indicative of cognitive impairment, with lower scores indicating more severe impairment. Published research on the MMSE indicates good reliability; interrater correlations of .82 and test-retest reliability ranging from .89 to .98 (Cockrell & Folstein, 1988; Folstein et al., 1975). The MMSE was administered at baseline and at post-intervention to track the progression of cognitive decline (if any) over the course of the study.

Functional status—Katz Basic Activities of Daily Living (ADL) Scale (Katz, Downs, Cash, & Grotz, 1970) is a brief 6-item scale in which the caregiver rates whether the participant is able to independently complete a set of activities such as bathing, dressing, etc. Higher numbers reflect greater independence. The Katz was tracked as a means of monitoring participant decline in abilities over the course of the study.

Depressed mood—The Cornell Scale for Depression in Dementia (CSDD: Alexopoulos, Abrams, Young, & Shamoian, 1988) is a 19-item, clinician-scored brief inventory of depressive symptomology for individuals with a diagnosis of dementia. The score is informed by information from both the caregiver and the participant with symptoms evaluated on a 3-point rating scale (0=“absent”, 1=“mild or intermittent”, and 2= “severe”). Scores of 8 or greater are indicative of significant depressive symptoms. Reliability and validity scores of the CSDD are good to excellent. Inter-rater reliability kappa for the CSDD is .67, its internal consistency ratings (.84) are adequate, and its validity was established based on comparisons with the Hamilton Depression Rating Scale (Korner et al., 2006). For those participants who were referred for depression or for both depression and agitation, the CSDD was administered and utilized to evaluate the severity of depressive symptomology at baseline and post-intervention.

Preferred activities—The Pleasant Events Schedule (PES: Lewinsohn & Libet, 1972) and the Reinforcer Assessment for Individuals with Severe Disabilities (RAIS-D: Fisher, Piazza, Bowman, & Amari, 1996) were utilized as structured means to obtain a list of preferred leisure activities. The PES is a brief, 44-item, structured questionnaire conducted with the older adult. Participants are required to respond to the yes/no questions that are designed to elicit interest in a variety of leisure activities.

The RAIS-D is a structured interview designed to obtain a list of specific pleasurable activities (reinforcers) for which the participant may be interested. The RAIS-D was originally designed for use with individuals with developmental disabilities, but has been found to be clinically useful with older adults with dementia (LeBlanc et al., 2006). The RAIS-D was administered to a staff member and family member (if available). The stimuli identified by the interview are then ranked by the caregivers in terms of what they believe will be most preferred by the resident.

Paired-Stimulus Preference Assessments—As previously noted, a preference assessment is a structured technique for systematically identifying the preferred items in

individuals with verbal and/or cognitive impairments. Eight stimuli are chosen (identified from the PES and RAIS-D); each item is coupled with another item from the list and presented in a random order until all possible item combinations had been given. The therapist records the participant's response to each item, and this response is utilized to gauge preference (e.g., verbally indicating choice of item, reaching for item). Then the items are ranked based on the number of times chosen by the participant.

Procedures

The present study involved three phases: 1) baseline measures, 2) intervention, and 3) evaluation.

Phase 1—Administration of baseline measures. Baseline measures were taken on overall frequency of agitated behaviors using the CMAI, mental and functional status (MMSE and Katz ADL, respectively), Cornell Scale for Depression (where applicable) for a measure of severity of depressive symptomology, possible behavior function (MAS), and preferred activities (PES and RAIS-D). Following the procedure utilized in LeBlanc et al. (2006), these interviews were used to create a list of items to be used in the preference assessments in Phase 2.

Phase 2—Intervention. Intervention included conducting SPA, communicating results to staff, and developing behavior plans. To determine participant preference, the eight items that were identified in Phase 1 were presented in a paired-item format following the procedures in Fisher, Piazza, Bowman, & Hagopian (1992) and were conducted in the tangible modality. The items were presented in a counterbalanced fashion reflecting the side that the item was placed on (right or left) to control for side preference and the presence of hemi-neglect, which could inadvertently affect choices made. The items were then ranked based on the number of times chosen.

Results of the SPA were communicated to staff and systematically incorporated into individualized care plans. For example, the results from the MAS were examined with staff and incorporated into function-based interventions. The items from the SPA identified as the top four ranked items were communicated to staff and the therapists then engaged in problem-solving with staff in how to incorporate SPA information into the resident's care plan. Staff were observed and given corrective feedback during the first day of implementation of the behavior plans.

Phase 3—Ongoing assessment measures. On-going assessment was conducted to evaluate whether the preference assessment-informed behavior plan decreased agitated behavior using the CMAI. In addition, the Cornell Scale for Depression in Dementia (CSDD) was administered to those participants referred for depressive symptoms. The CSDD was administered post intervention to assess impact of the behavior plan on depressive symptomology. The Katz ADL was also administered routinely to track change in functional status over time.

Research Design

This study used a pretest/posttest experimental design for evaluating the impact of the intervention on depression and a non-concurrent multiple baseline design across participants for evaluating the impact of the intervention on agitation. A multiple baseline design is designed such that measurements are taken on each person during baseline, and then the intervention is initiated such that each person has a successively longer baseline period (Kazdin, 1982). Thus the person serves as his/her own control. This design controls for maturation effects. The key feature of this design is that the behavior should change only

when the intervention is applied and not before, thus providing evidence that the intervention and not some extraneous variable is responsible for the behavior change. As each pattern of behavior change is replicated across each successive baseline, this provides a further demonstration of control. For this reason, multiple baseline designs have an advantage over other designs (such as ABAB designs) in that the intervention does not have to be withdrawn to demonstrate control, thus making it more appealing both ethically (in that you do not have to withdraw an effective intervention) and in terms of its acceptability to staff. Visual inspection was used to compare baseline data to treatment data to determine if there was a significant decrease in CMAI, which would indicate a decrease in level of agitation. The more immediate the change in agitated behavior after introduction of the intervention, the stronger the demonstration of the power of the intervention.

Results

Eleven older adult participants were included in our study. Seven participants were referred for agitation and four participants were referred for both agitation and depression. All participants carried diagnoses of dementia; five were diagnosed with dementia of the Alzheimer's type, two with vascular dementia, and four with undifferentiated dementia (i.e., Dementia NOS) at least one year prior. The mean MMSE score was 7.1 ($SD = 7.9$, range 0 – 23). The mean Katz ADL scale score was 2.3 ($SD = 2.0$, range 0 – 5). Our participants included 9 Caucasian females, 1 Hispanic female, and 1 Caucasian male. Two of the participants were nonverbal, eight had various levels of verbal ability, and one was Spanish-speaking only.

The PES was successfully conducted with 8 participants (72.7%) and for the remaining 3 participants either a family member or LTC staff member (i.e., care manager and CNA) completed it on their behalf (9.1% completed by family members and 18.2% by LTC staff). The RAIS-D was successfully conducted with either family members and/or LTC staff (i.e., CNA's and professional caregivers). The percentage of family members who completed the RAIS-D was 35.7%. On average, the SPA took about 32.5 min to complete (range 15 – 45). The majority of cases resulted in clear preferences for some items over others. SPA were successfully conducted with 9 of the 11 participants. One participant was unable to stay seated for more than a few minutes at a time before getting up to wander, and the second refused SPA participation. For the resident who wandered (Caucasian female), the information on possible preferred activities (as identified by the PES and RAIS-D) was summarized and provided to the LTC staff as possible items to incorporate in the behavior plan (e.g., introduce items at predictable times before the resident became agitated). For the second participant (Caucasian female) who refused the SPA phase and was in a severe agitated state (i.e., weeping, rocking side to side, and hair pulling), the therapist offered her a choice of different colored balloons (that had been brought for the preference assessment) in an attempt to distract her from her agitated behaviors. The participant indicated interest in the yellow balloon only and when the balloon had been blown up and offered to her, she began to laugh and was able to engage in a game of balloon toss. Staff were informed of the results of this interaction and encouraged to use the balloon in future interactions to distract and redirect her when agitated. Anecdotal reports from staff suggest that this intervention was successful in reducing her agitation, although her data are not available because of participant refusal to complete the SPA.

It took approximately 25–30 min to go over the results of the SPA with staff. Staff appeared receptive to results and reported willingness to implement the interventions. Therapists observed and coached staff during the first session of utilizing objects or engaging in preferred activities with the resident.

Individual scores are presented (refer to Figures 1 & 2). Clear reductions in overall CMAI scores were observed in seven of nine participants who received the intervention, with a slight reduction in an additional one participant. Interobserver agreement was conducted on approximately 10% of sessions with two independent caregivers ranking the participants' agitated behaviors with 90% agreement on overall level of agitation.

In the four individuals who were also referred for depression, pre and post-depression scores on the CSDD indicated that for Participant 5, a clinically significant change in score was observed (an 11-point drop), indicating the participant no longer scored in the Major Depressive Disorder range. For Participant 9, a small decrease in score as reported by the CSDD was found (a 2-point drop) and no clinically significant change was observed in the remaining two participants (Participants 1 & 2).

Case Study 1

Mr. Jones is a 74-year-old, Caucasian male, with a diagnosis of moderate to severe dementia (MMSE = 0), who was referred for “agitated” behaviors. Mr. Jones exhibited frequent wandering behaviors around the care home and would “fidget” with the doorknobs to the extent that he tended to break them. Mr. Jones' CMAI score was high at baseline (CMAI = 60).

The MAS indicated that it was likely that the behavior functioned to increase his stimulation as it tended to occur when Mr. Jones was alone, when staff were busy toileting other residents, or during the lull after lunch was over.

A tangible paired-choice preference assessment was conducted with Mr. Jones with very clear results. Mr. Jones consistently chose three items (jazz music, purple fabric, and a blue boa/fuzzy sash) during the assessment. He took only 2 seconds to choose an item and would engage with it during the entire period prior to the next trial.

The therapist met with care home staff to discuss the findings from the assessment measures and the preference assessment. The therapist then brain-stormed with staff to discuss how to incorporate findings into a behavior plan, discussed how to apply the plan within the care home, and modeled the plan implementation with the resident. Mr. Jones' conservator was able to purchase a CD walkman with the jazz music that Mr. Jones used to listen to, a blue sweater, sweatshirt and shirts, and the team provided the purple fabric in which he showed interest. The LTC staff were coached to do a “check in procedure” in which they would introduce these items to Mr. Jones during those times when he was most likely to wander into other resident's rooms and/or play with doorknobs. Staff identified that he would engage in these behaviors during periods of low stimulation after meals. Staff members then carried out the intervention. After a week of introducing the preferred items to Mr. Jones, caregivers noticed a vast improvement in Mr. Jones' functioning, evidenced by the discontinuation of his wandering and handling of the doorknobs. His CMAI scores decreased from 60 to 33 within 2 months, indicating that he no longer qualified for agitated status.

Case Study 2

Mrs. Smith is an 84-year-old, Caucasian female, with a diagnosis of moderate dementia of the Alzheimer's type. She was referred for “agitated behaviors”. Mrs. Smith would frequently engage in screaming, attempts to elope from the facility, and intermittent aggression towards staff and residents when they would try to prevent her from leaving the facility. Mrs. Smith's CMAI score had increased during baseline and was extremely high at the end of baseline (CMAI = 83).

The MAS clearly indicated that her behavior functioned to allow her to “escape” during periods of high stimulation, such as during shift change, meal preparation, and during noisy group activities like singing or music.

A tangible paired-choice preference assessment was conducted with Mrs. Smith and resulted in clear results. Mrs. Smith consistently chose three items (flowers made of felt material, photo album with pictures of her family, and a book with pictures of San Francisco). She took no longer than a few seconds to choose an item and would engage with the item until staff removed it for the next trial. She was also able to speak about why she liked the item and of what it reminded her.

The therapist met with LTC staff to review the findings from the assessment measures and the preference assessment. The therapist then coached caregivers to present one of these items to her during times in the day when she seemed to become restless and try to escape (during periods of high stimulation). Staff then carried out the intervention. Caregivers found that they could easily redirect her with each of these items before she would get too restless (i.e., antecedent intervention). They found that once she became agitated, it was more difficult for them to distract and redirect her, further emphasizing the need to prepare in advance for times in the day when noisy activities were planned, meals were being prepared, and when there was high traffic from visitors. Her intervention was slightly adjusted such that before times of increased sensory stimulation, caregivers engaged her by presenting preferred items and found that this helped to decrease her attempts to escape. Her CMAI scores decreased dramatically over 5 weeks from 83 to 34, indicating that she no longer met criteria for agitated status.

Discussion

Agitation and depression are two of the most difficult behaviors for caregivers to manage (Fisher et al., 1993) and account for the greatest use of resources. In the current study, caregivers were given two structured inventories to assist in generating a list of preferred leisure items and activities. These items were used in systematic choice making opportunities (SPA) with the person with dementia to determine preferred items that would be applied in subsequent behavioral plans. The use of structured interviews to obtain a rank ordered lists of leisure activities has been shown in previous studies to be more accurate than simply asking caregivers to nominate items possibly because the structure of the interviews cues caregivers to think of categories of activities that the person may have enjoyed in the past and does not rely on recall (Fisher et al., 1996). Although this process of obtaining preferences may take more time in the beginning, it is more accurate and efficient than simply trying items without prior information of preferences, which may waste valuable staff time and may lead to inadvertently increasing the agitation level of participants.

Agitated behaviors were operationalized and the hypothesized functions were obtained using the MAS. These target behaviors were then assessed and tracked over time using the CMAI. Generally a total score is not used when tracking agitated behavior with the CMAI, rather criteria are used to determine agitated/not agitated status in three categories: aggressive, physically nonaggressive, and verbally agitated behavior. However, given that we were interested in the improvement in the overall level of agitation in our participants, we utilized a total score as the main criteria for success. Further analyses looking at the agitated/not agitated status indicate that six participants no longer qualified as agitated, and three participants still qualified as agitated. However, of those three who remained agitated, one was discharged to the hospital secondary to systematic infections, one was discharged to the hospital secondary to severe pain, and the last passed away after contracting pneumonia. Thus, because of attrition, it is difficult to determine if in the absence of severe physical

illnesses, whether the intervention would have been effective or not for these three individuals.

Results of the assessments were then communicated to the staff in a 30 min session, and behavior plans were made collaboratively. LTC staff were able to utilize the MAS to assist in determining possible functions for the agitated behaviors and identify patterns for when it might be best to introduce the intervention (e.g., during shift change, after lunch, etc.). This suggests that with training and encouragement, LTC staff can create and implement behavioral interventions with good effect. It is important to note, however, that trained therapists completed the preference assessment procedures, and thus it is unclear from this study whether or not LTC staff would have the time to be taught how to implement the procedures and conduct them with integrity.

LTC staff were able to successfully implement behavior plans that incorporated prompts for activity choice or access to preferred items to reduce depression and agitation in older adults with dementia. These behavior plans resulted in substantial decreases in agitated behavior scores as measured by the CMAI. Future research needs to evaluate how well staff can continue to create these interventions without continued support from behavioral specialists. Researchers should investigate mechanisms for dissemination of these tools and interventions to enhance the sustainability of these practices.

We believe that despite the initial time investment needed for training in preference assessment procedures, the offset in decreased agitation and increased quality of life in residents merits further investigation. Future research should examine the effectiveness of training staff in identifying preferred reinforcers for individuals with depression and agitation. The positive outcomes observed imply that LTC staff should have increased access to these tools. Staff comfort with conducting assessments and their efficiency in completing these procedures may be enhanced if preference assessments were part of the initial intake or admission process and prompts for activity choice (or providing access to preferred items) became part of the normal care routine. Using preference assessment tools and related interventions may assist in the treatment and prevention of future episodes of agitation and therefore reduce caregiver burden related to managing agitation.

In addition, these findings have important implications for increasing quality of life in individuals with dementia. Having data from preference assessments might result in better therapeutic outcomes in terms of reduction in agitation, and therefore less need for medications (e.g., chemical restraint), and may lead to increased activity level of participants. For example, preference assessments could assist the practitioner in developing lists of activities that are satisfying for that person. This may assist with promoting more active involvement of the affected individual with the environment, thereby reducing depressive symptoms. Thus, preference assessments have potential as both a clinical and research tool in LTC settings.

Limitations

When examining the multiple baseline graphs, with the exception of participant 1, the pattern of change occurs when and only when the intervention is applied and is replicated across participants, lending support that the intervention is responsible for the change in agitated status. One limitation to this design is reflected in the short baseline periods. Typically with single case designs, baseline data represent individual behavioral observations, and three data points are conventionally used to observe a trend. In our study, we used the CMAI which was a measure of overall agitation level based over a 2-week period. With such a long observation period, it was not always possible to collect the conventional number of data points. For several participants it was necessary to intervene

earlier to prevent loss of placement, rather than waiting the 6 weeks necessary to obtain the three data points. However, despite this limitation, given that the behavior change was in the desired direction, occurred immediately after administration of the intervention, and was replicated across baselines, we can be more confident in our results.

For depression the results were far less clear. For two of four participants referred for depression, behavior plans using preferred items resulted in modest decreases in depression scores at post-intervention. However, for the remaining two participants, no changes in depressive symptoms were observed. This was a surprising finding given research supporting theories of depression related to lack of access to reinforcing events (Lewinsohn & Libet, 1972) and decreased positive interactions between the person and their environment (Teri, 1996). Given that this study was designed to both increase participant access to pleasant and preferred activities and thus increase the positive interaction with their environment, we would have expected to see decreases in depressive symptomatology. However, we did not observe every instance in which staff implemented the behavior plans, and thus it is possible in these cases that either the interventions were not carried out to fidelity or that the interaction between the caregiver and the participant was not positive. Another potential reason that the intervention does not seem to have been as effective in decreasing depressive symptoms may be related to the fact that indicators of depression in persons with dementia are often more difficult for others to observe and report (Forsell, Jorm, & Winblad, 1993). The CSDD contains many behavioral indicators of depression, but some indicators still require the subjective evaluation of the reporter (e.g., poor self-esteem, pessimism).

We were unable to complete the preference assessments with two of the participants. One limitation of this study relates to the possibility that those two participants who were unable to complete the preference assessments may have been the most agitated. This could indicate that preference assessments may not have utility in the cases of severe agitation. However, this has not been empirically demonstrated. Future investigators may want to evaluate use of preference assessments in individuals with differing levels of agitation. Unfortunately, both of these participants were moved to higher levels of care due to physical ailments before the interventions could be implemented. It would have been interesting to discover whether the interventions would have been as effective in decreasing agitation and depression without having knowledge of the final ranking of preferred items. Anecdotal evidence suggests that this is a possibility. An alternative interpretation is that these two participants were unable to sit still long enough to complete the preference assessments. This could indicate that the means by which the preference assessments are administered may need to be altered in those participants who wander. For example, the assessment could be completed while walking with the participant. To our knowledge this has not been attempted in the published research. Future research should investigate the effectiveness of alternate formats for conducting preference assessments in individuals who wander.

Strengths

This study adds to the current literature on preference assessments and agitation management in an applied setting. Much of the previous literature on preference assessments has focused on either identifying and predicting potential reinforcers to be used in subsequent interventions in individuals with developmental disabilities (Hagopian et al., 2004) or increasing engagement in individuals with dementia (Leblanc et al., 2006). There are no studies to our knowledge that have looked at the utility of using preference assessments as part of an intervention in the management of depression and agitation in older adults with dementia.

In many types of research a final sample size of eight would be considered a limitation. However, in single case design research this is not the case. With multiple baseline designs, the minimum requirement is *two* baselines (e.g., participants), and three baselines are even stronger as the number of baseline affects the number of opportunities for replication of results. In our study, we saw replications in eight of nine baselines, providing evidence of a powerful intervention.

These results suggest that a relatively quick and simple procedure for evaluating preferences for leisure activities/items can be utilized in simple interventions to reduce agitation in individuals with dementia in a LTC setting and may be effective for reducing depression, as well. Given the success of using SPA to identify preferred items to be used in interventions to decrease difficult behaviors that occur at a high rate, it may be possible to use these same procedures to increase prosocial behaviors that occur at a low rate. Once preferred items are identified from the preference assessments and individuals are given access to these preferred items contingent on certain behaviors, these items could then be used to reinforce and strengthen adaptive behaviors. There is evidence that the procedures can be successfully used in this fashion in research with individuals with developmental disabilities (Fisher et al., 1996). Future research should investigate this as a possibility, as increasing adaptive behaviors is likely related to increased access to positive social reinforcers and positive interaction with the environment.

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Figure 1. Scores on the Cohen-Mansfield Agitation Inventory for Participants 1–3 (upper figure) and for Participants 4–6 (lower figure).

Figure 2.
Scores on the Cohen-Mansfield Agitation Inventory for Participants 7–9.

Table 1

Facility demographics for number of beds, staffing ratios, and number of participants referred

Facility Number	Number of beds	Staff to Resident Ratio	Number of participants in study
1	20	2:5	4
2	24	5:6	1
3	19	7:19	2
4	60	3:10	2
5	86	5:17	1
6	95	7:19	1