Asian Nursing Research 6 (2012) 75–81

Contents lists available at SciVerse ScienceDirect

Asian Nursing Research

journal homepage: www.asian-nursingresearch.com

Research Article

# Correlates of Social Engagement in Nursing Home Residents with Dementia

Hyunwook Kang, PhD, RN *

*College of Nursing, Keimyung University, Daegu, South Korea*

ARTICLE INFO

*Article history:*
Received 25 December 2011
Received in revised form
15 May 2012
Accepted 15 May 2012

*Keywords:*
dementia
social interaction
nursing home
aged

SUMMARY

*Purpose:* The social needs of nursing home (NH) residents with dementia are often ignored even though they are capable of expressing their emotions and responding in social interactions. Insufficient social engagement in this population is known to be associated with low quality of life as well as many negative health outcomes, such as mortality, agitation, and functional decline. The purpose of this study was to identify the correlates of social engagement in NH residents with dementia.
*Methods:* The study used a descriptive, correlational design. A total of 153 older adults with dementia in 17 Iowa NHs participated in this study. Minimum Data Set for NH version 2.0 served as an outcome measure to evaluate social engagement, cognitive and physical functions, depression, and behavioral symptoms. Demographic data were obtained from the participants' medical records.
*Results:* The findings indicated that no significant relationship was found between demographic characteristics and social engagement. There were significant and negative correlations between the degree of social engagement and the levels of cognitive impairment, activities of daily living impairment, depression, and vision. Among these correlates, depression was the most potent predictor of engagement.
*Conclusion:* The study provided information about the correlates of social engagement in NH residents with dementia. Future research needs to be conducted to develop nursing interventions to involve these individuals in social activities tailored to functional levels, and depression in more diverse geographic regions.

## Introduction

It is well known that many nursing home (NH) residents with dementia are involved in few activities in these facilities, and those residents are likely to stay in their beds for long periods of time. Moreover, it has been reported that NH residents had little interaction with others and spent most of their time doing nothing or engaging in passive activities (Chung, 2004; Kolanowski, Buettner, Litaker, & Yu, 2006). In this paper, social engagement is defined as the act of being occupied or involved with meaningful activities and interactions, which is modified from the work of Cohen-Mansfield, Dakheel-Ali, and Marx (2009). Low levels of social engagement including inactivity may contribute to producing a variety of negative health outcomes, such as a loss of physical function, social isolation, and worsening behavioral symptoms in individuals with dementia.

Increased time spent in activity programs in individuals with dementia has been associated with decreased restless behavior, reduced use of psychotropic medications, improved nutrition, and increased family satisfaction in an adult day care center (Volicer, Simard, Pupa, Medrek, & Riordan, 2006). Also, administration of activities adjusted to functional levels and personality style of interest increased pleasure and decreased agitation and passivity in NH residents with dementia (Cohen-Mansfield, Libin, & Marx, 2007; Kolanowski, Litaker, Buettner, Moeller, & Costa, 2011). In addition, research findings suggest that quality of life (QoL) in this population was significantly associated with increased social or recreational activities (Cohen-Mansfield et al.; Schreiner, Yamamoto, & Shiotani, 2005). Activity programs may be particularly helpful in improving QoL of residents with apathy, agitation and who are unable to initiate meaningful activities (Volicer et al.).

Individuals with dementia may be more vulnerable to social isolation because the symptoms of dementia gradually impede social skills in the affected persons. As dementia progresses, the affected individuals develop apathy or apraxia, gradually losing the skills that are important in forming and maintaining social interaction (Ham, 2002, pp. 245–308). However, some studies have revealed that the severity of cognitive impairment (CI) may not fully account for social cognition in older adults with dementia. For example, Washburn and Sands (2006) compared older adults with

---

* Correspondence to: Hyunwook Kang, PhD, RN, College of Nursing, Keimyung University, 1095 Dalgubeoldaero, Dalseo-gu, Daegu 704-701, South Korea.

*E-mail address:* hyunwkang@gmail.com (H. Kang).

1976-1317/$ – see front matter Copyright © 2012, Korean Society of Nursing Science. Published by Elsevier. All rights reserved.
doi:10.1016/j.anr.2012.05.006

mild to moderate CI and those without it using 5 social cognition measures. Results indicated that the scores of cognitively impaired individuals exceeded those of the other group in 2 measures; affect recognition and the representation of social situations. This finding may suggest that persons with CI could maintain affect and meaningful social interactions.

Kolanowski, Litaker, and Catalano (2002) also reported that even a person in late-stage dementia could experience a range of moods. They carried out a case study with a 79-year-old man with severe CI and with a Mini Mental State Exam (Folstein, M. F., Folstein, S. E., & McHugh, 1975) score of 4. The researchers' rating of affect and the participant's self-reported mood were similar, in particular the expression of pleasure (smiling and laughing), sadness, and interest. More recently, Cohen-Mansfield, Dakheel-Ali, Jensen, Marx, and Thein (2012) found the significant and positive relationship of engagement with positive affect including interest and pleasure in NH residents with dementia manifesting agitated behavior. These findings suggest that even individuals with dementia may experience emotional levels of QoL, and these individuals are able to express themselves and respond to social interactions. The level of CI may not be appropriate for evaluating their ability to be involved in social interactions. Therefore, nurses in NHs, who play a major role in providing quality care for the residents, need to provide effective interventions to promote social engagement in this population. Understanding the factors that are significantly correlated with social engagement would guide us to the development of salient nursing interventions tailored to the diverse needs of these individuals.

Previous studies have reported the significant factors associated with activity participation in this population. For example, Cohen-Mansfield, Marx, Regier, and Dakheel-Ali (2009) found that female gender, higher cognitive functioning, and less use of medication were positively associated with longer engagement duration and more positive attitude in activity programs. However, there are few studies that have shown the association of social engagement with dementia-related behavioral and psychological symptoms, as well as demographic and functional levels in older adults with dementia living in NHs.

Therefore, the present study aimed to identify the impact of demographic characteristics, cognitive and physical impairment, behavioral symptoms, and depression on social engagement in NH residents with dementia. The specific aims were to (a) identify the demographic characteristics of NH residents with dementia, (b) identify the levels of cognitive and physical impairment (i.e., vision, hearing, and activities of daily living [ADL] impairment), depression, behavioral symptoms, and social engagement among NH residents with dementia, and (c) identify the association of social engagement with demographic characteristics, levels of cognitive and physical impairment (i.e., vision, hearing, and ADL impairment), depression and behavioral symptoms.

## Methods

### *Study design*

This study used a descriptive, correlational design.

### *Participants and setting*

A total of 153 older adults with dementia from 17 NHs in the state of Iowa participated in this study. Ten older adults with dementia from each NH were invited to participate in the study. Inclusion criteria were (a) male or female aged 60 years and over, (b) a diagnosis of Alzheimer's disease, or dementia other than Alzheimer's disease as recorded in their medical charts, and (c) residency in a NH. Exclusion criteria were (a) having acute health problems or injury within the past month and (b) being comatose.

### *Measures*

#### *Demographic characteristics*

Demographic characteristics including age, gender, marital status, ethnicity, education, length of stay, and psychotropic medications were collected from Minimum Data Set for Nursing Home (MDS-NH) version 2.0.

#### *Social engagement*

The level of social engagement of residents with dementia was measured by MDS-NH section F1 – Sense of Involvement/Initiative (MDS-SII). The social engagement domain of MDS-NH consists of six dichotomous variables: whether or not the resident (a) is at ease interacting with others, (b) is at ease doing planned or structured activities, (c) is at ease doing self-initiated activities, (d) establishes his/her own goals, (e) pursues involvement in the daily life of the facility, and (f) accepts invitations to most group activities. Scores range from 0 to 6, with higher scores indicating greater social engagement. In the literature, the reported inter-rater reliability of the MDS-SII was .64 (Mor et al., 1995).

#### *Cognitive impairment (CI)*

The level of CI of the resident participants was evaluated using the Minimum Data Set Cognition Scale using the Minimum Data Set Cognition Scale (MDS-COGS) (Hartmaier, Sloane, Guess, & Koch, 1994). The MDS-COGS is a 10-point additive scale consisting of eight MDS items, as follows; (a) short-term memory, (b) long-term memory, (c) knows location of own room, (d) knows he or she is in a nursing home, (e) no orientation items recalled, (f) decision making, (g) making self understood, and (h) dressing self-performance. The MDS-COGS scores range from 0 (*cognitively intact*) to 10 (*very severe impairment*). A validation study (Hartmaier et al.) reported that the MDS-COGS scale had high sensitivity, specificity, and kappa compared with the Mini-Mental State Examination (Folstein et al., 1975) and the Global Deterioration Scale (Reisberg, Ferris, de Leon, & Crook, 1988).

#### *Physical impairment*

MDS-Activities of Daily Living (MDS-ADLs) and the Hearing and Vision sections in MDS were used to assess the physical impairment of residents. MDS-ADLs consists of six items on the ADL self-performance subscale of the MDS, including transfer, locomotion, dressing, eating, toilet use, bathing, and bladder continence. Each ADL self-performance item on the MDS is rated on a 5-point scale (0 = *independent*, 1 = *needing supervision*, 2 = *limited assistance*, 3 = *extensive assistance*, and 4 = *total dependence*), with higher scores indicating more impairment in ADLs. There are five levels in rating bladder continence, as follows: 0 = *continent*, 1 = *usually continent*, 2 = *occasionally incontinent*, 3 = *frequently incontinent*, and 4 = *incontinent*. Based on these rating schemes, Mor et al. (1995) created six MDS-ADL categories: 0 = *minor oversight*, 1 = *extensive oversight*, 2 = *limited assistance*, 3 = *extensive assistance*, 4 = *dependent*, and 5 = *highly dependent*. Construct validity was established with a correlation of .89 between the MDS-ADLs and the Physical Signs and Symptoms Scale (Frederiksen, Tariot, & De Jonghe, 1996).

MDS data from section C1 Hearing was used to measure the auditory functions of the resident participants. This section is a Likert scale with four levels: 0 = *hearing adequately*; 1 = *minimal difficulty*; 2 = *hears in special situations only*; 3 = *highly impaired hearing*. Reliability of this scale was reported to be .84 (Hawes et al., 1995). Visual function was assessed by MDS section D1 Vision. This is a five-level ordinal variable scale (i.e., *adequate*, *moderately impaired*, *impaired*, *highly impaired*, and *severely impaired*). "Vision" refers to the ability to see in adequate light and with glasses, if used (Morris et al., 1991). The reported reliability of this scale was .62 (Hawes et al.).

### *Depression*

Depression was measured by the seven-item scale of the MDS-Depression Rating Scale (MDS-DRS; Burrows, Morris, Simon, Hirdes, & Philips, 2000). The seven items include (a) resident made negative statement, (b) persistent anger and irritability at self or others, (c) expressions of what appear to be unrealistic fears, (d) repetitive health complaints, (e) repetitive anxious complaints/concerns, (f) sad, pained, worried facial expressions, and (g) crying, tearfulness. Items are scored such that 0 = *indicator not exhibited in the last 30 days*, 1 = *indicator not exhibited up to 5 days a week*, and 2 = *indicator exhibited daily or almost daily* (i.e., 6 or 7 days per week). The theoretical range of sum score is from 0 (e.g., *no indicators shown in the last month*) to 14 (e.g., *all 7 indicators seen 6–7 days per week*). A cut-off score of 3 for mild to moderate depression has been suggested to maximize sensitivity (Burrows et al., 2000). This subscale's inter-rater reliability was .89 (Casten, Lawton, Parmelee, & Kleban, 1998).

### *Behavioral symptoms*

Behavioral symptoms were assessed by the MDS-Behavior Rating Scale (MDS-BRS). This measurement consists of four items, as follows; (a) verbally abusive behavioral symptoms, (b) physically abusive behavioral symptoms, (c) socially inappropriate/disruptive behavioral symptoms, and (d) care-resisting activities. The frequency of behavioral symptoms was rated such that 0 = *behavior not exhibited in the last 7 days*, 1 = *behavior of this type occurred for 1–3 days in the last 7 days*, 2 = *behavior of this type occurred for 4–6 days, but less than daily*, and 3 = *behavior of this type occurred daily*. Therefore, the theoretical range of the sum score is from 0 (i.e., *no behaviors shown in the last 7 days*) to 12 (i.e., *all 4 behaviors occurred daily*). The inter-rater reliability of this scale was reported to be.95 (Casten et al., 1998). The validity was reflected in the .72 of correlation coefficient found when the MDS-BRS was compared with the Cohen-Mansfield Agitation Inventory (CMAI) (Perlman & Hirdes, 2008).

### *Sample and setting*

### *Nursing homes*

After the University of Iowa Institutional Review Board approved the study, the NH recruitment took 7 months, from the beginning of July 2008 to the end of January 2009. Initially, 20 NHs located within 50 miles of Iowa City were randomly selected from the Nursing Home Compare (Centers for Medicare and Medicaid Services, 2008). Thereafter, administrators or directors of nursing of the selected NHs were contacted by advance letter to explain the study outline, and phone calls followed to confirm their intention to participate. Finally, the researcher received agreement from 17 NHs.

### *Residents with dementia*

The directors of nursing or the MDS coordinator of each participating NH provided a roster of residents with dementia who met the inclusion and exclusion criteria of the study. From the residents listed on the roster, the researcher selected 10 participant candidates using a random numbers table. Then, the nursing staff made phone calls to the selected candidates' legal representatives to ask if they were interested in this study, and if they agreed, the researcher sent them informed consent forms. A total of 170 legal representatives were contacted and 17 of them refused. Although almost all the legal representatives agreed, assents from the participants were also obtained when the participant was capable of expressing his or her willingness to participate. The judgment on a resident's decision-making capability was based on the Evaluation to Sign an Informed Consent Form provided by the University of Iowa Institutional Review Board.

### *Data collection*

Data from MDS-NH version 2.0 were retrieved from MDS reports of participants. Medical charts were reviewed to confirm the diagnosis of dementia in the resident participant and to identify psychotropic medications.

### *Statistical analysis*

All data were coded and entered into excel and SPSS version 15.0 (SPSS Inc., Chicago, IL, USA). The statistical significance threshold was set at $p < .05$. For continuous variables, measures of central tendency (e.g., mean and median) and dispersion (e.g., range, standard deviation) were reported. Percent distribution was generated to present categorical variables. In addition, *t*-test, analysis of variance, Schéffe test, Pearson's correlation, and stepwise multiple regression analysis were performed.

## Results

### *Demographic characteristics*

As Table 1 shows, participants were 85 years old on average, ranging from 62 to 101 years old (*SD* = 7.3). More than half of the participants were widowed females with an above high school level of education. All of the participants were white, none of Hispanic origin; the average length of stay in the nursing homes was 135 weeks with a range of 6–811 weeks. More than half (65.4%, *n* = 100) were taking antidepressants.

### *Functional impairment, depression, behavioral symptoms and social engagement*

A majority of resident participants (82.4%, *n* = 126) were included in the MDS-COGS stage 4, suggesting severe CI. Regarding

**Table 1** *Demographic Characteristics of Participants (N = 153)*

| Variable | *n* (%) | *M* (*SD*) | Median | Range |
|---|---|---|---|---|
| Age (year) | | 85 (7.3) | 90 | 62–101 |
| Gender | | | | |
| Male | 54 (35.3) | | | |
| Female | 99 (64.7) | | | |
| Marital status | | | | |
| Never married | 9 (5.9) | | | |
| Married | 54 (35.3) | | | |
| Widowed | 85 (55.6) | | | |
| Divorced/separated | 5 (3.3) | | | |
| Race/ethnicity | | | | |
| White, not of Hispanic origin | 153 (100.0) | | | |
| Education | | | | |
| Lower than high school | 50 (32.7) | | | |
| High school or over | 103 (67.3) | | | |
| Length of stay (week) | | 135 (119.0) | 104 | 6–811 |
| Psychotropic medications (multiple choices) | | | | |
| Antipsychotics | 43 (28.1) | | | |
| Antidepressants | 100 (65.4) | | | |
| Anxiolytics | 40 (26.1) | | | |

ADL impairment, about three quarters (74.5%, $n = 114$) of the resident participants were in need of more than “extensive assistance”, with an average ADL impairment score of 16.86 ($SD = 6.03$). Overall, a vast majority of the resident participants had a minimum level of sensory impairment. While 86.9% ($n = 133$) of the resident participants were capable of hearing adequately or had minimal difficulty, 81.0% ($n = 124$) were able to see regular print in newsprints or books, or at least large print, which was rated as adequate or impaired vision. While 38.6% ($n = 59$) of the participants had depression, approximately half did not present any behavioral symptoms, and 68.7% ($n = 85$) engaged in more than two kinds of social activities (Table 2).

### *Association between demographic characteristics, functional impairment, depression, behavioral symptoms and social engagement*

As seen in Table 3, among demographic characteristics, participants with less use of anxiolytics had greater social engagement ($r = -.211$, $p = .016$). Table 4 shows that a significant, negative relationship was found between degrees of CI ($r = -.285$, $p = .001$), ADL impairment ($r = -.314$, $p < .001$), visual impairment ($r = -.203$, $p = .021$), depression ($r = -.225$, $p = .010$), behavioral symptoms ($r = -.270$, $p = .002$), and social engagement.

**Table 2** *Functional Impairment, Depression, Behavioral Symptoms, and Social Engagement (N = 153)*

| Variable | *n* (%) | *M* (*SD*) |
|---|---|---|
| MDS-COGS | | |
| Cognitively intact | 0 (0) | 2.87 (0.44) |
| Mildly impaired | 1 (0.7) | |
| Moderately impaired | 20 (13.1) | |
| Severely impaired | 126 (82.4) | |
| Very severely impaired | 6 (3.9) | |
| Vision | | |
| Adequate | 90 (68.8) | 0.67 (1.03) |
| Impaired | 34 (22.2) | |
| Moderately impaired | 11 (7.2) | |
| Highly impaired | 16 (10.5) | |
| Severely impaired | 2 (1.3) | |
| Hearing | | |
| Hears adequately | 88 (57.5) | 0.57 (0.77) |
| Minimal difficulty | 45 (29.4) | |
| Hears in specialsituations only | 17 (11.1) | |
| Highly impaired | 3 (2.0) | |
| MDS-ADL | | |
| Minor oversight | 4 (2.6) | 3.01 (1.22) |
| Extensive oversight | 3 (2.6) | |
| Limited assistance | 32 (20.9) | |
| Extensive assistance | 71 (46.4) | |
| Dependent | 36 (23.5) | |
| Highly dependent | 7 (4.6) | |
| MDS-SII | | |
| 0–1 | 48 (31.3) | 2.41 (1.52) |
| 2–3 | 70 (45.8) | |
| ≥ 4 | 35 (22.9) | |
| MDS-DRS | | |
| 0–2 | 94 (61.4) | 1.80 (2.18) |
| ≥ 3 | 59 (38.6) | |
| MDS-BRS | | |
| 0 | 74 (48.3) | 1.70 (2.37) |
| 1–2 | 42 (27.5) | |
| ≥ 3 | 37 (24.2) | |

*Note.* MDS-COGS = Minimum Data Set Cognition Scale; MDS-ADL = Minimum Data Set Activity of Daily Living; MDS-SII = Minimum Data Set Social Initiative/Involvement; MDS-DRS = Minimum Data Set Depression Rating Scale; MDS-BRS = Minimum Data Set Behavioral Symptom Rating Scale.

**Table 3** *Association of Social Engagement With Demographic Characteristics (N=153)*

| Variables | *M* (*SD*) | *t*/F/*r* | *p* |
|---|---|---|---|
| Age | | .044 | .618 |
| Gender | | | |
| Male | 2.36 (1.72) | –.868 | .387 |
| Female | 2.61 (1.48) | | |
| Marital status | | | |
| Never married | 2.78 (1.79) | .770 | .513 |
| Married | 2.33 (1.65) | | |
| Widowed | 2.65 (1.51) | | |
| Divorced/separated | 1.75 (0.96) | | |
| Education | | | |
| Lower than high school | 2.42 (1.47) | –.574 | .567 |
| High school or over | 2.67 (1.62) | | |
| Length of stay | | .024 | .784 |
| Psychotropic medications | | | |
| Antipsychotics | | –.144 | .104 |
| Anxiolytics | | –.211 | .016 |
| Antidepressants | | –.083 | .347 |

### *Factors influencing social engagement*

Stepwise multiple regression was performed with the factors having significant associations with social engagement. As Table 5 indicates, overall, the model explained 22.0% of variance in social engagement ($F = 8.724$, $p < .001$). Among correlates, ADL impairment, CI, depression, and vision significantly affected social engagement, while depression had the greatest effect ($\beta = -.247$), and vision had the smallest effect ($\beta = -.167$). However, behavioral symptoms and anxiolytics did not have an effect on social engagement after controlling for the other factors.

## Discussion

This study examined the correlates of social engagement in NH residents with dementia. The findings indicated that greater social engagement in NH residents with dementia was significantly associated with lower levels of ADL impairment, CI, visual impairment and depression. Depression was the greatest factor affecting social engagement among the correlated variables. The negative, significant relationship between the levels of depression and social engagement was consistent with findings from other studies. Tsai et al. (2009) also reported that depression was the greatest risk factor for poor social engagement of the institutionalized Chinese elderly. Dobbs et al. (2005) found that depression was significantly associated with reduced activity involvement such as traveling outside the facility, being with pets, or exercising inside the facility. Siedlecki et al. (2009) compared predictors of patient-rated and caregiver-rated activity participation. They found that depression

**Table 4** *Correlation Coefficients Describing Social Engagement With Functional Impairment, Depression, and Behavioral Symptoms (N = 153)*

| Variables | *r* | *p* |
|---|---|---|
| Cognitive impairment | –.285 | .001 |
| ADL impairment | –.314 | <.001 |
| Vision | –.203 | .021 |
| Hearing | –.110 | .216 |
| Depression | –.225 | .010 |
| Behavioral symptoms | –.270 | .002 |

*Note.* ADL = activities of daily living.

**Table 5** *Stepwise Multiple Regression Model with Correlates of Social Engagement*

| Correlates | B | *SE* | β | *t* | *p* |
|---|---|---|---|---|---|
| ADL Impairment | −.257 | .116 | −.200 | −2.214 | .029 |
| Cognitive Impairment | −.238 | .101 | −.214 | −2.358 | .020 |
| Depression | −.177 | .057 | −.247 | −3.101 | .002 |
| Vision | −.255 | .122 | −.167 | −2.085 | .039 |
| Anxiolytics | −.036 | .049 | −.065 | −.743 | .459 |
| Behavioral Symptoms | −.049 | .063 | −.074 | −.775 | .440 |

F ($df = 152$) = 8.724 ($p < .001$), Adjusted $R^2 = .220$.

was the only significant predictor that both patients and caregivers agreed on.

A lower level of ADLs has been associated with reduced activity involvement, less time in activities, and more violent behavior in persons with dementia (Isaksson, Aström, Sandman, & Karlsson, 2008; Kolanowski et al., 2006). In the present study, approximately 70% of the participants needed extensive assistance or were dependent on NH staff to perform ADLs (Table 2). Considering that there is substantial literature on inadequate staffing in NHs (Castle, Engberg, Anderson, & Men, 2007; Castle, Engberg, & Men, 2007), the low level of ADLs in the affected individuals coupled with a lack of staff providing assistance in ADLs may be a strong barrier against persons with dementia to be involved in activity programs or active interaction in facilities. Other evidence suggests that activity staff in NHs are likely to engage the affected residents with limited ADLs in activity programs for only a limited period of time, and those residents are left unoccupied for a substantial period of time (Kolanowski et al., 2006). Activity programs tailored to varying levels of ADL performance would be helpful to facilitate social engagement of residents with dementia and to reduce NH staff's effort in assisting residents.

There is little consensus on demographic factors and their relation to the level of social engagement in persons with dementia. The present study did not find any demographic characteristics significantly associated with social engagement, whereas Cohen-Mansfield, Marx et al. (2009) reported that female gender was the only personal factor that affected engagement. Tsai et al. (2009) supported the result of this study by presenting nonsignificant relationship with demographic characteristics. These discrepancies might be due to the difference in the measurements for engagement. The present study and Tsai et al. used the MDS-SII, which was completed by NH staff. This scale mainly assessed how easily the residents were involved in activities or interaction with others. On the other hand, Cohen-Mansfield, Marx et al. (2009) administered the Observational Measure of Engagement, which assessed four dimensions of engagement: attention, attitude, duration and refusal, and the research team completed the questionnaire. Although Cohen-Mansfield, Marx et al. (2009) also used MDS data to evaluate the other demographic characteristics, the use of different outcome measurements for assessing the level of social engagement might explain the disagreement among findings.

Regarding the relationship between CI and social engagement, the present study found that a higher level of CI was associated with lower social engagement (Table 4). The literature has reported positive relationship of social engagement with cognitive function (Krueger et al., 2009; Tsai et al., 2009). Kolanowski et al. (2006) suggested that an activity program tailored to the functional ability, including cognitive and physical functions, and prominent aspects of residents' personalities was effective in making residents with dementia more engaged in activity programs. This finding suggests that tailored interventions adjusted for the levels of CI are needed to facilitate social engagement in this population.

Regarding sensory function, the present study found that lower visual impairment was significantly associated with higher social engagement. In the literature, together with CI, deficits in visual and hearing functions were able to predict low engagement (Kolanowski et al., 2006). It was reported that Alzheimer's disease, the most frequent type of dementing illness, affects the visual pathways, which leads to visual impairment in persons with dementia (Rizzo, Anderson, Dawson, & Nawrot, 2000). Consequently, visual decline may be a risk factor for ADL impairment, impeding social interaction in this population. However, Koch, Datta, Makhdoom, and Grossberg (2005) reported that only 31% of persons with dementia actively used glasses, and 94.1% of persons with dementia required vision correction in NHs. Therefore, providing regular checkups for vision and timely intervention for visual decline would help not only to maintain physical functions but also to facilitate social engagement.

Several limitations need to be addressed in this study. The geographic restriction of the study to the state of Iowa could limit the generalizability of the findings. The population of the state is often characterized as being more white-dominated than the rest of the country. In fact, U.S. census data for 2009 reported that in Iowa, white/non-Hispanic or Latino made up as much as 97% of the population aged 65 and over, whereas the national average was 80.1% (U.S. Census Bureau, 2009). Therefore, findings might differ if the present study were to be conducted in other states. Another limitation is that the MDS-SII is a caregiver-rated instrument. Considering the evidence that residents with mild to moderate CI could rate their own preferences, choices, or QoL (Feinberg & Whitlatch, 2001; Selai, Trimble, Rossor, & Harvey, 2001), self-reports by these individuals could have generated more accurate results, although a majority of the participants in this study had severe CI. Finally, some researchers have criticized limited psychometric properties of section F, the psychosocial well-being of MDS version 2.0, although this instrument has been used to assess social engagement in this population (Achterberg et al., 2003; Tsai et al., 2009). This limitation of MDS version 2.0 resulted in the development of version 3.0. Version 2.0 was used in this study because version 3.0 was not available in NHs when the data collection of this study was conducted.

### *Implication for nursing research*

As suggested above, nursing researchers need to develop an instrument to measure self-reported social engagement in persons with mild to moderate CI. The generally accepted misconception that reports from persons with CI are not reliable has resulted in a dependency on proxy reports even in measuring highly subjective concepts, such as social interaction or QoL. However, Siedlecki et al. (2009) found that a considerable gap existed in the level of activity participation between proxy reports and self-reports of persons with Alzheimer's disease in mild to moderate stages. Their team found that caregivers rated activity participation of persons with Alzheimer's disease significantly lower than the patients rated their own activity participation. Considering that the level of social engagement is often used as an outcome measure in dementia intervention trials, inaccurate measurement of this concept may prevent researchers from finding positive effects in those trials. Nursing researchers also need to conduct multidisciplinary studies to develop interventions promoting social engagement in this population. Finally, research needs to be conducted to investigate social engagement in minority NH residents with dementia including African-Americans and other ethnic populations. Mor, Zinn, Teno, and Miller (2004) investigated racial and socioeconomic disparities in the quality of NH care using state-wide MDS data. They found that African-American residents were likely to live in low-tier nursing facilities with fewer nurses, more health-related deficiencies, and very limited resources. Since the findings of this study suggest that extensive staff time and effort may be required to assist residents with dementia and multifaceted functional impairment in social engagement, it is highly likely that residents residing in NHs providing low quality of care may have fewer opportunities to participate in engagement. Furthermore, considering that personality was reported to be one of the factors influencing activity participation in NHs (Kolanowski et al., 2006), the level of social engagement may vary according to the cultural background of the residents.

### *Implication for nursing practice and collaboration*

The findings of this study suggest that nurses working with older adults with dementia in NHs need to make an effort to develop effective nursing interventions for depression, and to adjust for functional levels in order to promote social engagement of NH residents with dementia. Collaborating with other professionals such as social workers or recreational therapists may be another important role of nurses in NHs because nurses are likely to be the best informants on residents' health status, including levels of CI, ADLs, depression, sensory impairment and other comorbid illnesses. One of the examples of those collaboration programs for individuals with dementia is the NEST, which stands for the Needs, Environment, Stimulation, and Techniques (Buettner & Fitzsimmons, 2009). This approach provides tailored psychosocial interventions for persons with various levels of dementia. Cohen-Mansfield, Thein, Dakheel-Ali, Regier, and Marx (2010) reported that individuals with dementia demonstrated more positive attitude, were more attentive, and had longer engagement to social, realistic, and human stimuli than nonsocial, not realistic, and nonhuman stimuli. Also, moderate levels of sound and the presence of 4–9 people proved to increase engagement of individuals with dementia (Cohen-Mansfield, Thein, Dakheel-Ali, & Marx, 2010). Nurses may implement the findings of these studies to involve more residents with dementia in social interaction or activities.

## Conclusion

This study found a number of correlates of social engagement in NH residents with dementia. Future research needs to be conducted to develop salient nursing interventions to involve these individuals in social engagement tailored to the level of residents' physical, cognitive, and psychological functions.

## Conflict of interest

There are no real or perceived conflicts of interest that relate to this paper.

## References

Achterberg, W., Pot, A. M., Kerkstra, A., Ooms, M., Muller, M., & Ribbe, M. (2003). The effect of depression on social engagement in newly admitted Dutch nursing home residents. *TheGerontologist, 43*, 213–218.

Buettner, L., & Fitzsimmons, S. (2009). *N.E.S.T.approach: Dementia practice guidelines for disturbing behaviors*. State College, PA: Venture Publishing.

Burrows, A. B., Morris, J. N., Simon, S. E., Hirdes, J. P., & Philips, C. (2000). Development of a minimum data set-based depression rating scale for use in nursing homes. *Age and Ageing, 29*, 165–172.

Casten, R., Lawton, M. P., Parmelee, P. A., & Kleban, M. H. (1998). Psychometric characteristics of the minimum data set I: confirmatory factor analysis. *Journal of the American Geriatrics Society, 46*, 726–735.

Castle, N. G., Engberg, J., Anderson, R., & Men, A. (2007). Job satisfaction of nurse aides in nursing homes: intent to leave and turnover. *The Gerontologist, 47*, 193–204.

Castle, N. G., Engberg, J., & Men, A. (2007). Nursing home staff turnover: impact on nursing home quality measures. *The Gerontologist, 47*(5), 650–661.

Centers for Medicare and Medicaid Services. (2008). *Nursing home compare*. Retrieved June 2, 2008, from http://www.medicare.gov/NHCompare/Include/DataSection/Questions/SearchCriteriaNEW.asp?version=default&browser=IE%7C7%7CWinXP&language=English&defaultstatus=0&pagelist=Home&CookiesEnabledStatus=True

Chung, J. C. C. (2004). Activity participation and well-being of people with dementia in long-term care settings. *Occupational Therapy Journal of Research: Occupation, Participation and Health, 24*, 22–31.

Cohen-Mansfield, J., Dakheel-Ali, M., Jensen, B., Marx, M. S., & Thein, K. (2012). An analysis of the relationships among engagement, agitated behavior, and affect in nursing home residents with dementia. *International Psychogeriatrics, 24*, 742–752.

Cohen-Mansfield, J., Dakheel-Ali, M., & Marx, M. S. (2009). Engagement in persons with dementia: the concept and its measurement. *American Journal of Geriatric Psychiatry, 17*, 299–307.

Cohen-Mansfield, J., Libin, A., & Marx, M. S. (2007). Nonpharmacological treatment of agitation: a controlled trial of systematic individualized intervention. *The-Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 62*, 908–916.

Cohen-Mansfield, J., Marx, M. S., Regier, N. G., & Dakheel-Ali, M. (2009). The impact of personal characteristics on engagement in nursing home residetns with dementia. *International Journal of Geriatric Psychiatry, 24*, 755–763.

Cohen-Mansfield, J., Thein, K., Dakheel-Ali, M., & Marx, M. S. (2010). Engaging nursing home residents with dementia in activities: the effects of modeling, presentation order, time of day, and setting characteristics. *Aging and Mental Health, 14*, 471–480.

Cohen-Mansfield, J., Thein, K., Dakheel-Ali, M., Regier, N. G., & Marx, M. S. (2010). The value of social attributes of stimuli for promoting engagement in persons with dementia. *The Journal of Nervous and Mental Disease, 198*, 586–592.

Dobbs, D., Munn, J., Zimmerman, S., Boustani, M., Williams, C. S., Sloane, P. D., et al. (2005). Characteristics associated with lower activity involvement in long-term care residents with dementia. *The Gerontologist, 45*(Special No.1(1)), 81–86.

Feinberg, L. F., & Whitlatch, C. J. (2001). Are persons with cognitive impairment able to state consistent choices? *The Gerontologist, 41*, 374–382.

Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research, 12*, 189–198.

Frederiksen, K., Tariot, P., & De Jonghe, E. (1996). Minimum data set plus (MDS+) scores compared with scores from five rating scales. *Journal of the American Geriatrics Society, 44*, 305–309.

Ham, R. J. (2002). Dementias. In R. J. Ham, P. D. Sloane, & G. A. Warshaw (Eds.), *Primary care geriatrics: A case-based approach*. St. Louise, MO: Mosby.

Hartmaier, S. L., Sloane, P. D., Guess, H. A., & Koch, G. G. (1994). The MDS cognition scale: a valid instrument for identifying and staging nursing home residents with dementia using the minimum data set. *Journal of the American Geriatrics Society, 42*, 1173–1179.

Hawes, C., Morris, J. N., Phillips, C. D., Mor, V., Fries, B. E., & Nonemaker, S. (1995). Reliability estimates for the minimum data set for nursing home resident assessment and care screening (MDS). *The Gerontologist, 35*, 172–178.

Isaksson, U., Aström, S., Sandman, P. O., & Karlsson, S. (2008). Factors associated with the prevalence of violent behaviour among residents living in nursing homes. *Journal of Clinical Nursing, 18*, 972–980.

Koch, J. M., Datta, G., Makhdoom, S., & Grossberg, G. T. (2005). Unmet visual needs of Alzheimer's disease patients in long-term care facilities. *Journal of the American Medical Directors Association, 6*, 233–237.

Kolanowski, A., Buettner, L., Litaker, M., & Yu, F. (2006). Factors that relate to activity engagement in nursing home residents. *American Journal of Alzheimer's Disease and Other Dementias, 21*, 15–22.

Kolanowski, A., Litaker, M., Buettner, L., Moeller, J., & Costa, P. T. (2011). A randomized clinical trial of theory-based activities for the behavioral symptoms of dementia in nursing home residents. *The American Geriatrics Society, 59*, 1032–1041.

Kolanowski, A. M., Litaker, M. S., & Catalano, P. A. (2002). Emotional well-being in a person with dementia. *Western Journal of Nursing Research, 24*(1), 28–43, discussion 43–48.

Krueger, K. R., Wilson, R. S., Kamenetsky, J. M., Barnes, L. L., Bienias, J. L., & Bennett, D. A. (2009). Social engagement and cognitive function in old age. *Experimental Aging Research, 35*, 45–60.

Mor, V., Branco, K., Fleishman, J., Hawes, C., Phillips, C., Morris, J., et al. (1995). The structure of social engagement among nursing home residents. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 50*(1), 1–8.

Mor, V., Zinn, J. A., Teno, J. M., & Miller, S. C. (2004). Driven to tiers: socioeconomic and racial disparities in the quality of nursing home care. *The Milbank Quarterly, 82*, 227–256.

Morris, J. N., Hawes, C., Murphy, K., Nonemaker, S., Phillips, C., Fries, B., et al. (1991). *Resident assessment instrument training manual and resource guide*. Natick, MA: Eliot Press.

Perlman, C., & Hirdes, J. (2008). The Aggressive Behavior Scale: a new scale to measure aggression based on the minimum data set. *Journal of the American Geriatrics Society, 56*, 2298–2303.

Reisberg, B., Ferris, S. H., de Leon, M. J., & Crook, T. (1988). Global deterioration scale (GDS). *Psychopharmacology Bulletin, 24*, 661–663.

Rizzo, M., Anderson, S. W., Dawson, J., & Nawrot, M. (2000). Vision and cognition in Alzheimer's disease. *Neuropsychologia, 38*, 1157–1169.

Schreiner, A. S., Yamamoto, E., & Shiotani, H. (2005). Positive affect among nursing home residents with Alzheimer's dementia: the effect of recreational activity. *Aging and Mental Health, 9*, 129–134.

Selai, C. E., Trimble, M. R., Rossor, M., & Harvey, R. J. (2001). Assessing quality of life in dementia: preliminary psychometric testing of the Quality of Life Assessment Schedule (QOLAS). *Neuropsychological Rehabilitation, 11*, 219–243.

Siedlecki, K. L., Tatarina, O., Sanders, L., Albert, M., Blacker, D., Dubois, B., et al. (2009). Comparison of patient and caregiver reports of patient activity participation and its relationship to mental health in patients with Alzheimer's disease. *Journal of Gerontology: Psychological Sciences, 64B*, 687–695.

Tsai, C. F., Ouyang, W. C., Chen, L. K., Lan, C. F., Hwang, S. J., Yang, C. H., et al. (2009). Depression is the strongest independent risk factor for poor social engagement among Chinese elderly veteran assisted-living residents. *Journal of the Chinese Medical Association, 72*, 478–483.

U. S. Census Bureau. (2009). *U. S. census populations estimates: July 1, 2009*. Retrieved January 15, 2010, from http://www.census.gov/popest/datasets.html

Volicer, L., Simard, J., Pupa, J. H., Medrek, R., & Riordan, M. E. (2006). Effects of continuous activity programming on behavioral symptoms of dementia. *Journal of the American Medical Directors Association, 7*, 426–431.

Washburn, A. M., & Sands, L. P. (2006). Social cognition in nursing home residents with and without cognitive impairment. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 61*(3), 174–179.