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The Relationship between Direct-Care Staff's Competence in Social Interaction and Behavioral Symptoms in Korean-American Nursing Home Residents with Dementia

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The Relationship between Direct-Care Staff's

Competence in Social Interaction and Behavioral Symptoms

in Korean-American Nursing Home Residents with Dementia

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Nursing

by

Hae Sook Kim

2012

ABSTRACT OF THE DISSERTATION

The Relationship between Direct-Care Staff's

Competence in Social Interaction and Behavioral Symptoms

in Korean-American Nursing Home Residents with Dementia

by

Hae Sook Kim

Doctor of Philosophy in Nursing

University of California, Los Angeles, 2012

Professor D. Lynn Woods, Chair

The purpose of this study was to explore and describe the relationship between the social interaction competence of non-Korean direct-care staff members and Korean American older adults exhibiting behavioral symptoms of dementia (BSDs) who reside in an ethnically specific nursing home. A pilot study was completed to evaluate the feasibility, usability, content validity, and inter-rater reliability of two social interaction-coding schemas, a dementia competence coding schema and a culturally competent coding schema, developed by the principal investigator.

In general, there was a negative trend between direct-care staff's dementia competence in social interaction and BSDs that interacted with their level of cultural competence in social interaction. These results suggest that both dementia competent and culturally competent social interactions influence BSDs, although there were morning and afternoon differences. The results

provide a foundation that may lead to the development of culturally appropriate and supportive interventions for ethnic minority older adults, as a starting point to improve dementia care for ethnic minority nursing home residents. Implications and recommendations for further studies are presented.

The dissertation of Hae Sook Kim is approved.

Linda R. Phillips

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2012

To my parents

TABLE OF CONTENTS

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CHAPTER I. INTRODUCTION

Statement of problem

Progressive cognitive impairment, frequently accompanied by behavioral symptoms and personality changes, characterize dementia (Beers & Berkow, 2000). Behavioral symptoms of dementia (BSDs) are frequently observed in up to 83% of nursing home (NH) residents (Bedford, Melzer, & Guralnik, 2001). Since the number of persons with dementia (PWD) is estimated to increase from 11 to 16 million by 2050 (Alzheimer's Association, 2012), the prevalence of BSDs is likely to increase significantly. These behaviors include observable vocal, verbal, or physical activity such as restlessness, problematic vocalization, wandering and tapping (Bliwise & Lee, 1993; Woods, 1993), that frequently lead to fear and avoidance in caregivers, medication overuse, early NH placement, and staff turnover (Black & Almeida, 2004; Everitt, Fields, Soumerai, & Avron, 1991; Middleton, Stewart, & Richardson, 1999; Spore, Horgas, Smyer, & Marks, 1992; Yaffe et al., 2002). While there have been several studies focusing on BSDs over the past 20 years, the occurrence of BSDs in ethnic minority older adults is under studied.

The census bureau reports that ethnic minorities comprise 35% of the United State (US) population (Census, 2010). In 2000, 16% of Americans aged 65 and older were ethnic minority older adults, a figure that is expected to rise to 24% by 2020 (Administration on Aging, 2011). As the number of ethnic minority older adults increases, dementia and related behavioral symptoms may become a concern for ethnic minority groups such as Korean Americans (KAs). In the US, 1.7 million KAs represent the fifth largest Asian group, with a population increase of 42% from 2000 to 2010 (Census, 2000; 2010). The prevalence of dementia among KA older adults who currently reside in the US is unknown. However, considering the aforementioned

increase in the number of dementia cases in the US, the number of BSDs in KA older adults with dementia may increase.

As ethnic diversity increases in the US, culturally competent care is being emphasized as a means to reduce health disparities and improve the quality of life for persons in minority groups (Brach & Fraser, 2000; Yeo, 2009). KA older adults make up a homogeneous immigrant group with retained language and culture (Min, 2001), many of whom came to the US from Korea to help their children (Kauh, 1999; Kim, 1997). Moreover, many of these older adults have low English proficiency and low acculturation (Hurh & Kim, 1984; Koh & Bell, 1987; Sohn, 2004). Thus, they may relate better to a culturally familiar physical and social environment. Since a culturally familiar environment provides KA older adults with a sense of belonging and psychological comfort (Son & Kim, 2006), KA older adults report that they would like to reside in NHs that provide culturally appropriate care (Min, 2005; Shin, 2008). The need for cultural familiarity may be more pronounced in KA-NH residents with dementia.

Need for the study

Direct-care staff members are ethnically diverse. The National Nursing Assistant Survey (2004) reports that 20% of certified-nursing assistants (CNAs) in the US are immigrants and that 52% of the immigrated CNAs use English as a second language. Although ethnic minority older adults prefer to live in ethno-specific NHs, if living in an NH at all, where they experience a familiar language and environment, ethnic minority NH residents are frequently from a culture that differs from the direct-care staff members who care for them (Chen, 2007; Ekman, Norberg, Wahlin, & Winblad, 1995; Shin, 2008; Westbrook & Legge, 1992). If direct-care staff members use a different language with little understanding of the PWD's culture, these differences may

result in a cultural mismatch. The resultant cultural confusion and inappropriate social interactions may contribute to BSDs.

Dyadic studies of social interactions between direct-care staff members and residents in NHs who have different cultural backgrounds are rare. The relationship between staff's competence in social interaction and BSDs among minority older adults, including KAs, is rarely studied.

Purpose of the study

The purpose of this study was to explore and describe the relationship between the social interaction competence (i.e. dementia competence, cultural competence) of non-Korean direct-care staff members and KA older adults exhibiting BSDs who reside in an ethnically specific NH.

Theoretical framework

Several theoretical frameworks have been developed to guide the understanding of BSDs (Cohen-Mansfield, 2000). One model, the biomedical model assumes that BSDs originate from neurobiological and pathologic changes that occur in dementia (Kirby & Lawlor, 1995; Mcllroy & Craig, 2004). Examples include imbalance among neurotransmitters (Lanari, Amenta, Silverstelli, Tomassoni, & Parnetti, 2006; Lancot, Herrmann, & Mazzotta, 2001) and the hypothalamic-pituitary-adrenal (HPA) axis abnormalities (Lawlor et al., 1992). The perspective of the biological model is limited since the model does not consider that there may be environmental effects that interact with neurobiological changes resulting in BSDs.

A second model, the unmet needs model, such as the Need-Driven Dementia-Compromised Behavior model (NDB) (Algase et al., 1996), assumes that behaviors result from PWD having needs that are not met and that they are unable to communicate these needs. In this model,

underlying needs include bio-psycho-social factors of two types: stable background factors (e.g., neurological, cognitive, health status, and psychosocial factor); and changeable proximal factors (e.g., personal, physical, and social environment). Behaviors arise because of the PWD's inability to communicate their needs coupled with an inability to interact with the environment to meet these needs. This conceptual model has helped researchers understand and study BSDs more comprehensively, however, the breadth of the model and the complexity of BSDs makes it difficult to test the relationship of background and proximal factors to BSDs.

The third model is based on environmental vulnerability and is represented by two models, the Progressively Lowered Stress Threshold (PLST) model (Hall & Buckwalter, 1987) and the Ecological Model of Aging (EMA) (Lawton & Nahemow, 1973; Lawton, 1975). Both of these models postulate that BSDs originate from mismatches between PWD's ability and environmental stimuli. According to the PLST model, PWD are believed to have a lowered stress threshold to environmental stimulation (i.e., are less able to manage stressors), given progressive cognitive decline rendering them more vulnerable to environmental stressors. BSDs occur when the environmental stimuli exceed the PWD's stress threshold to stressors. Similarly, according to the EMA model, a person with fewer resources is more vulnerable to environmental stressors. When PWD's competencies do not match the environmental demand, BSDs may be elicited or increase.

The theoretical framework for the current study is based on the combination of these two models, the PLST and the EMA. Social interactions between direct-care staff members and KA with dementia are considered an aspect of the social environment. If direct-care staff members fail to provide dementia and culturally appropriate social interactions, PWD's stress may increase resulting in BSDs. On the other hand, if direct-care staff members provide dementia and

culturally appropriate social interactions, matching the PWD's need, BSDs may decrease or may not be elicited (Figure 1-1).

Hypothesis

To describe and explain the relationship between direct-care staff's competence in social interactions and BSDs, we hypothesize that KA-NH residents with dementia will exhibit decreased frequency and intensity of BSDs, as measured by the modified Agitated Behavior Rating Scale, when direct-care staff members provide more dementia and culturally competent social interactions than when direct-care staff members provide less dementia and culturally competent social interactions, as measured by Social Interaction Coding Schemas.

Operational definitions

- *Behavioral symptoms of dementia (BSD)*: observable verbal, vocal, or physical activity that includes six behaviors: restlessness, escaping restraints, searching or wandering, tapping or banging, pacing or walking, and vocalization.

- *Social interaction*: direct-care staff members' verbal and non-verbal communication style while caring for NH residents.

- *Dementia-competent social interaction behaviors*: direct-care staff members' ability to be aware of and use dementia appropriate verbal and non-verbal communication skills while caring for NH residents. The dementia appropriate social interaction behaviors include making an eye contact, speaking slowly, keeping gentle pace, providing continuous assistance, speaking in a calm tone of voice, using gestures, and informing the resident before providing care.

- *Culturally-competent social interaction behaviors*: direct-care staff members' ability to be aware of and understand cultural differences that may effect residents' behaviors, and to

use culturally appropriate verbal and non-verbal communication skills while caring ethnic minority NH residents. The culturally competent social interaction behaviors for KA older adults include greeting, using polite expression speaking in Korean, keeping proximity around arm length, not staring at older adults, and not calling the resident's first name.

Three manuscripts have been prepared for this dissertation. The first, titled "The Relationship between Direct-Care Staff's Competence in Social Interaction and Behavioral Symptoms of Dementia in Ethnic Minority Older adults", is a review of current literature about the relationship between direct-care staff members' dementia and cultural competence in social interactions and BSDs exhibited by ethnic minority NH residents. Since there are few instruments that measure direct-care staff's competence in social interactions using direct observation, the principal investigator developed two social interaction coding schemas for the dissertation study: the dementia competent social interaction (DSI) and culturally competent social interaction (CSI) coding schema. In the second manuscript, titled "The Development of Direct-Care Staff Social Interaction Coding Schemas for Nursing Home Residents with Dementia", the authors present the results of a pilot study to evaluate the feasibility, content validity, and inter-rater reliability of two social interaction coding schemas developed by the principal investigator for the dissertation study. This manuscript has been published in Geriatric Nursing (Kim & Woods, 2012). The third manuscript, titled "The Association between Direct-Care Staff's Competence in Social Interaction and the Behavioral Symptoms of Dementia in Korean-American Nursing Home Residents", presents the results of the study that examined the association between 28 non-Korean direct-care staff's competence in social interactions and BSDs in 20 KA nursing home residents. Together these three papers provide beginning evidence

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to support the importance of the type of social interaction in dementia care for ethnic minority

older adults residing in nursing homes.

Figure 1-1. Social Environment - Behavioral Symptoms of Dementia Model
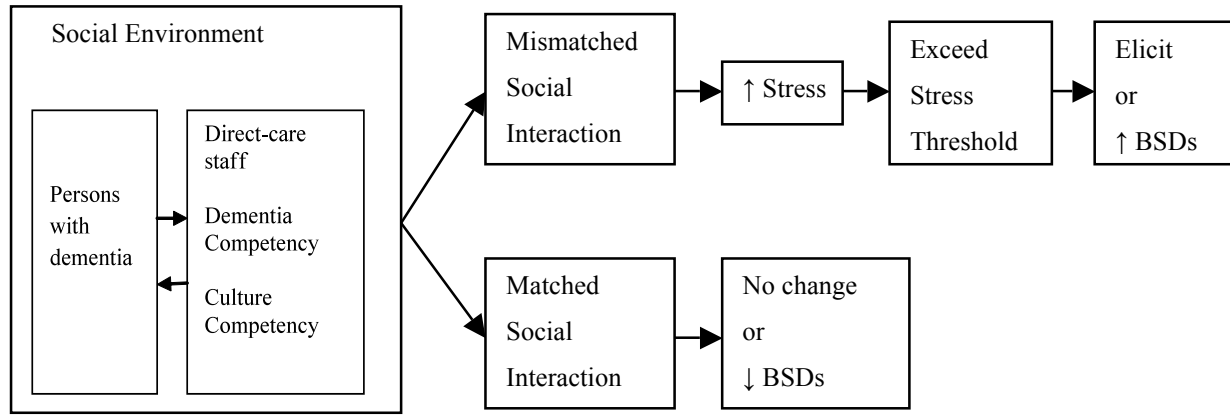
CHAPTER II

The Relationship between Direct-Care Staff's Competence in Social Interaction and Behavioral

Symptoms of Dementia in Ethnic Minority Older Adults

Abstract

This paper is a focused review of the current literature on the association between direct-care staff's competence in social interactions, both dementia and cultural competence, and behavioral symptoms exhibited by ethnic minority older adults who reside in nursing homes. Specifically, this paper focuses on the social interactions of non-Korean direct-care staff members and Korean-American nursing home residents. The literature reviewed suggests the need for direct-care staff members to utilize both dementia and culturally competent social interactions when communicating with Korean-American older adults, especially direct-care staff members whose cultural backgrounds are different from the ethnic minority nursing home residents.

Background

Behavioral symptoms of dementia (BSDs) are observable vocal or verbal activity, such as problematic vocalization, and physical activity, such as restlessness, wandering and tapping (Bliwise & Lee, 1993; Cohen-Mansfield, Marx, & Rosenthal, 1989). These behaviors have been reported in 64% to 83% of NH residents diagnosed with dementia (Bedford, Melzer, & Guralnik, 2001). Not only can such behavioral symptoms lead to early NH placement for persons who exhibit them, but also they can lead to avoidance in caregivers, medication overuse, and staff turnover (Middleton, Stewart, & Richardson, 1999; Spore, Horgas, Smyer, & Marks, 1992; Yaffe et al., 2002).

Although several studies focus on BSDs, ethnic minority older adults are under represented in this literature. In 2009, 19.9% of Americans aged 65 and older were from minority groups, a figure that is expected to rise to 24% by 2020 (Administration on Aging, 2011). As the number of ethnic minority older adults, including Korean-Americans (KAs), increases, culturally competent care becomes more critical. The population of KAs, the fifth largest Asian group in the United States (US), increased 31% from 2000 to 2008 (Census, 2000; 2008). The prevalence of dementia among the 151,248 KA older adults (Census, 2008) who reside in the US is unknown. However, given the increase in the overall number of persons with dementia in the US (Alzheimer's Association, 2012), there may be a corresponding increase in the number of KA older adults with dementia.

As ethnic diversity increases in the US, culturally competent care is recognized as a means to reduce health disparities and improve the quality of life for minorities (Yeo, 2009). If ethnic minority older adults reside in NHs, they prefer to receive culturally appropriate care with familiar socio-cultural surroundings (Chan, 2007; Heikkila & Ekman, 2003; Shin, 2008; Westbrook & Legge, 1992). However, information regarding culturally competent social interactions as it relates to BSDs among minority older adults, including KA older adults, is lacking (Choi, 2001).

Culture influences an individual's perception and behavior as learned and shared beliefs, values, knowledge, and rules (Leininger, 2002). In particular, traditional beliefs, and culturally specific values, are linked to cultural expectations that, in turn, affect an individual's behavior (Giger & Davidhizar, 2008). Examining how culture influences BSDs of ethnic minority older adults may provide knowledge into the way direct-care staff members communicate. This knowledge may decrease or prevent behavioral symptoms and may lead to an improved quality

of life for ethnic minority older adults with dementia.

This paper is a focused review of the current literature on the association between direct-care staff's competence in social interactions, both dementia competence and cultural competence, and BSDs exhibited by ethnic minority older adults who reside in NHs. Specifically, this paper focuses on the social interaction of non-Korean direct-care staff members and KA nursing home residents in the United States (US).

Conceptual framework

The combination of the Ecological Model of Aging (EMA) (Lawton, 1975), and the Progressively Lowered Stress Threshold (PLST) model (Hall & Buckwalter, 1987) can guide both the research and practice related to how direct-care staff's competence in social interactions is related to BSDs. While the EMA model provides a broad view of the interaction between the person and the environment, the PLST model focuses mainly on BSDs, describing these behaviors as a response to internal or external stressors.

Due to their impaired cognitive capacity, persons with dementia (PWD) are more compromised and less able to deal with their environment than older adults without dementia. Importantly, a person with fewer resources is more vulnerable to the environmental stressors. In other words, they tolerate environmental stimulation less well. According to the PLST/EMA model, BSDs may occur when PWD are unable to mobilize the responses necessary to handle the degree of environmental stimulation. According to the EMA model, when a person's competencies are matched with the degree of environmental stressors, BSDs decrease.

The degree of cultural competence of direct-care staff members may be considered an environmental stressor related to frequency and intensity of BSDs. The degree of culturally competent communication that direct-care staff members utilize likely varies depending on their

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own cultural background which may differ substantially from the persons for whom they are

caring (Lewis & Kirchen, 1996). KA residents may be more vulnerable when interacting with

non-Korean direct-care staff members because of cognitive limitation and language barriers.

As shown in Figure 1-1, if direct-care staff members fail to provide dementia competent

social interactions, creating a mismatch between the environment and the person's resources,

PWD may experience more stress. This stress may result in an increase in behavioral symptoms.

In the same way, if direct-care staff members fail to provide culturally competent social

interaction, the stress level of PWD may increase further, increasing behavioral symptoms.

When the mismatched social environment exceeds the stress threshold of PWD, behavioral

symptoms are elicited or may occur more frequently with increased intensity. On the other hand,

if social interactions are matched, BSDs may not be elicited or may decrease.

Definition of terms

The following terms are used in the context of this paper:

- *Behavioral symptoms of dementia (BSD)*: observable verbal, vocal, or physical activity that
  includes six behaviors: restlessness, escaping restraints, searching or wandering, tapping or
  banging, pacing or walking, and vocalization.

- *Social interaction*: direct-care staff members' verbal and non-verbal communication style
  while caring for NH residents.

- *Dementia-competent social interaction behaviors*: direct-care staff members' ability to be
  aware of and use dementia appropriate verbal and non-verbal communication skills while
  caring for NH residents. The dementia appropriate social interaction behaviors include
  making an eye contact, speaking slowly, keeping gentle pace, providing continuous

assistance, speaking in a calm tone of voice, using gestures, and informing the resident before providing care.

- *Culturally-competent social interaction behaviors*: direct-care staff members' ability to be aware of and understand cultural differences that may effect residents' behaviors, and to use culturally appropriate verbal and non-verbal communication skills while caring ethnic minority NH residents. The culturally competent social interaction behaviors for KA older adults include greeting, using polite expression speaking in Korean, keeping proximity around arm length, not staring at older adults, and not calling the resident's first name.

Methods

To review the current literature focused on the relationship between competence of direct-care staff in social interactions and BSDs of ethnic minority older adults, literature was retrieved from a variety of disciplines including nursing, medicine, psychology, East-Asian studies, and anthropology. We used several databases, including PUBMED, PsycINFO, CINAHL, Web of Science, and ProQuest Digital Dissertations. Searches were limited to articles published in English. Key words included *dementia, Alzheimer's dementia, behavioral symptoms of dementia, agitated behavior, direct care staff, certified nursing assistant, ethnicity, ethnic minority older adults, Korean-American, social interaction, dementia-competent care, culturally-competent care, communication skills, effective communication, nursing home, and long-term care facility.* These key words were searched separately or combined with similar terms. As a result of the literature search, 1 dissertation study and 8 articles that described social interactions and behavioral symptoms were retrieved. Among those studies, only three studies had been conducted with ethnic minority older adults.

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Review of the literature

This section introduces the concept of BSDs first and provides a review of published studies that focused on the relationship between behavioral symptoms and social interactions in older adults with dementia. To our knowledge studies of ethnic older adults that focus on dementia competent social interactions are rare. That said, several of the same concepts in dementia competent care would likely apply to ethnic minority older adults. Hence, the review of dementia competent social interaction literature is presented first in general terms, i.e., regardless of ethnicity, and then culturally competent social interactions are discussed more specifically in terms of ethnic minority older adults, in particular, KA older adults.

Behavioral symptoms of dementia

BSDs occur globally, with the prevalence in other cultures generally consistent with those in the US. The prevalence of BSDs is estimated at 85% in China among 164 NH residents (Choy et al., 2001), and 82% among 391 NH residents with dementia in Japan (Schreiner, Yamamoto, & Shiotani, 2000), a similar but slightly lower rate than the 93% for US-NH residents with dementia (Cohen-Mansfield, Marx, & Rosenthal, 1989). To determine BSDs, all studies utilized a widely used instrument, the Cohen Mansfield Agitation Inventory (CMAI) (Cohen-Mansfield & Billing, 1986), to measure BSDs.

BSDs in Korea range from 83% in nursing home residents with dementia using the CMAI (Suh, 2004), to 92% using the Behavioral Pathology in Alzheimer's Disease Rating Scale (Suh & Kim, 2004). Information regarding BSDs of KA older adults in particular is minimal. Only one unpublished dissertation study describes BSDs in KA older adults in NHs in the US. Choi (2001) described physically and verbally aggressive behaviors as 27% and 33% of all BSDs respectively. Using the CMAI (Cohen-Mansfield & Billing, 1986), direct-care staff members

reported the frequency of these two types of behavioral symptoms at the end of each shift (i.e., day, evening, night) during a two-week period. Among 54 NH resident participants, 63% (n = 34) manifested both physically aggressive behaviors, such as grabbing (51.9%) and pushing (42.6%), and verbally aggressive behaviors, such as cursing (77.8%) and screaming (57.4%).

Although the Choi's study is meaningful as the first study to examine the frequency of BSDs in KA-NH residents in the US, the study has major limitations. Because behavioral symptoms were recorded once at the end of each shift, the type and frequency of the behaviors reported are limited by the staff's memory of the behavior during the previous 8 hours. Because the staff members were at work and unable to observe behavior consistently, errors in reporting may have occurred. Some behaviors may have been exhibited when the staff members were not present. Moreover, since the staff members were NH employees who were familiar with the resident, behavioral reports might have been biased by assumptions about behavior or previous experience of the resident's behavior.

Social interaction

Communication is a dynamic process between two or more individuals sharing messages. Since PWD have difficulty understanding situations and expressing their thoughts and emotions due to cognitive impairment, they may misinterpret the verbal and nonverbal communication of staff members. These interactions may elicit BSDs.

Since few studies examined the relationship between social interactions and BSDs, the relationship between these two factors is unclear. The few studies that have examined social interactions between PWD and direct-care staff members used either a count of social interaction without regard for context, such as the number of visitors (e.g., staff, family members, friends, residents) (Chen, Ryden, Feldt, & Savik, 2000; Choi, 2001; Kolanowski & Litaker, 2006;

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Burgener et al., 1992). Other studies focused on several factors that may contribute to BSDs, the

why, how and context (e.g., shower, mealtime, who was present with the resident). All studies

employed a variety of data collection method that included proxy or informant reporting, direct

observation, videotaped recording, and recording field notes during the entire interaction

between staff members and residents to better understand BSDs.

Social interactions and behavioral symptoms of dementia

Three studies were found that used counts of social interactions to investigate the

relationship between social interactions and BSDs. These studies (Chen, Ryden, Feldt, & Savik,

2000; Choi, 2001; Kolanowski & Litaker, 2006) examined the frequency of social interactions as

related to the number of BSDs in NH residents with dementia.

Chen et al. (2000) collected social interaction data in three Mid-West NHs in the US by

asking day and evening nursing staff how often PWD interacted with residents, family, friends,

and staff. Data were collected using the Social Interaction Scale (SIS) (Chen et al.). The average

age of residents (N= 129) was 85.62 (±7.76) and 76 residents (58.9%) were widowed. The

ethnicity of the residents was not described. The nursing staff reported BSDs daily for 3 weeks

using the Ryden Aggression Scale (RAS) (Ryden, Bossenmaier, & McLachlan, 1991). The RAS

consists of 26 items, including three overall subtypes of behavior: physically aggressive behavior

(PAB), verbally aggressive behavior (VAB), and sexually aggressive behavior (SAB). Pearson's

correlation was used to describe the relationship between the frequency of social interactions and

BSDs. To assess SAB, residents were classified into two groups: *SAB present* or *SAB not*

present. Sexually aggressive residents had a higher number of social interactions (p = .019) than

residents without SAB. Residents who exhibited frequent PAB had fewer social interactions than

those resident with less frequent instances of PAB (r = -.193, p < 0.05). No significant

correlation was noted between VAB and the frequency of social interactions. According to the Chen et al.'s study, physically aggressive residents may require more attention from staff because they are likely to be alone and without visitors. As a basic human need, PWD may need social interactions to maintain self-esteem and to provide a sense of belonging.

Similar to Chen et al.'s study, Choi (2001) asked nursing staff to report the frequency of visitors using the Hebrew Home Social Network Rating Scale (Cohen-Mansfield & Marx, 1988), and the frequency of behavioral symptoms, especially physically (PAB) and verbally aggressive (VAB), using the CMAI (Cohen-Mansfield & Billing, 1986). In a sample of 54 KA older adults with dementia, Choi examined social interactions related to resident characteristics (e.g., cognitive status) and behavioral symptoms. This study was conducted in two ethnically specific NHs, where more than 60% of the residents were KAs. Residents with a higher frequency of PAB and VAB were more likely to have lower cognitive status scores and fewer social interactions (PAB: $F_{(6, 47)} = 3.35$, $p < .01$) (VAB: $F_{(6, 47)} = 4.53$, $p < 0.01$).

Although both the Chen's and Choi's studies found significant inverse relationships between the number of social interactions and PAB, due to the cross-sectional nature of these studies, it is not possible to ascertain whether PAB affects social interactions or social interactions affect PAB. In addition, the inconsistent study results about the relationship between VAB and social interaction in the two studies indicates further limitations. The differences may be explained by differences in population, sample size, and instrumentation. In addition, in both studies direct-care staff members, who relied on retrospective memory, collected data calling into question the accuracy of the data (Kolanowski & Litaker, 2006; McCann, Gilley, Hebert, Beckett, & Evans, 1997).

In contrast to the Chen and Choi studies, Kolanowski and Litaker used direct observation of residents and staff. They found a positive relationship between the number of social interactions and the numbers of BSDs. Thirty residents with dementia were recruited from four NHs in the North-East US. All residents were white and 77% of them were female. Residents were videotaped for 20 minutes per day for 12 consecutive days at the time of day when the residents were most likely to exhibit behavioral symptoms. Research assistants (RAs) recorded social interactions and BSDs in 5-minute blocks within the 20-minute videotaped observation period. RAs measured social interactions, using the Passivity in Dementia Scale (Colling, 2000). Nursing staff used subscales of the Multidimensional Observation Scale for Elderly Subjects (MOSES; Helmes, Csapo, & Short, 1987) to measure interactions. BSDs were measured using the CMAI (Cohen-Mansfield et al., 1989). When comparing two (low social interaction vs. high social interaction) groups, the group that exhibited a higher frequency of social interactions showed more frequent numbers of BSDs ($p < 0.0001$). These findings suggest that an inappropriate amount of interactions (i.e., number of instances of interactions) might elicit behavioral symptoms. Too little or too much interaction may frustrate residents with dementia leading to further BSDs (Burgio, Butler, Roth, Hardin, Hsu, & Ung, 2000). This study improved on the research design by observing BSDs directly and using trained RAs who were not employed by the NH, thus providing more accurate data about the occurrence of BSDs, however, the intensity of BSDs was not included in this study.

One possible reason for the inconsistent results between the Kolanowski and Litaker study and the Chen et al. and Choi studies may be the differences in the quality (as opposed to quantity) of social interactions. Regardless of the number of social interactions, the quality of

social interaction, such as making eye contact with the resident, calling the resident by name and or using a calm tone of voice, may influence on BSDs.

Dementia competent social interaction

Studies that examine the relationship between the quality of social interactions, instead of only measuring the frequency of social interactions, and BSDs are scarce. However, researchers agree that the quality of social interactions is more important than the quantity of the social interactions (Caris-Verhallen, Kerkstra, & Bensing, 1997). Four studies reported observations of staff/resident dyad interactions and described the influence of direct-care staff members' interaction on residents' behaviors.

Burgener, Jirovec, Murrell and Barton (1992) observed 58 direct-care staff/PWD dyads once for each of four events: dressing, toileting, bathing and an interpersonal situation. The total number of observations was 218. The average age of the residents was 84.5 years and the average Mini-Mental State Examination (MMSE: Folstein, Folstein, & McHugh, 1975) score was 6.9.

RAs rated the social interaction behaviors of the direct-care staff members and residents with dementia, using the Interaction Behavior Measure (IBM) scored on a 7-point Likert scale (McCrosky & Wright, 1971). The IBM for caregivers consists of 4 subscales: 1) relevance (irrelevant vs. relevant, unrelated vs. related), 2) personal attending (short vs. wordy, brief vs. lengthy, ideational vs. personal, apathetic vs. interested, withdrawn vs. involved), 3) relaxed (bothered vs. cool, tense vs. relaxed), 4) social/flexible (task-oriented vs. socially oriented, inflexible vs. flexible, unchangeable vs. changeable). The modified IBM used to measure residents' interaction behavior included 4 subscales: 1) personal attention (ideational vs. personal, apathetic vs. interested, withdrawn vs. involved), 2) calm/functional (bothered vs.

cool, tense vs. relaxed), 3) social/flexible (task-oriented vs. socially oriented, inflexible vs. flexible, unchangeable vs. changeable), 4) response to care (agitated vs. calm, resistant vs. cooperative).

There was a positive association between the caregivers' 'relaxed' (r = .42 to r = .46) behavior and the residents' 'calm/functional' behavior (p < 0.01). In other words, as staff members were more rigid and tense, residents exhibited agitation and less cooperative behavior across the caregiving events (dressing, toileting, bathing). Direct-care staff members had the highest 'relaxed' behavior score in the interpersonal situation (mean = 6.28), compared to the three task situations of dressing (mean = 5.50), toileting (mean = 5.71), and bathing (mean = 5.63). This study suggests that the quality of direct-care staff's social interaction behavior affects the BSDs of residents.

The temporal ordering of the staff's interaction behavior as it relates to the older adults' interaction behavior, however, remains unclear. Conversely, the interaction behavior of the residents may affect that of the direct-care staff members. Direct-care staff members may respond positively to residents who do not exhibit BSDs. In addition, residents' behavioral items listed in the IBM were not specific. Terms used for behavioral symptoms include 'agitated' and 'resistant' rather than well-defined verbal or nonverbal behaviors such as 'yelling' and 'hitting'. To measure residents' behavior, other instruments that list specific and observable behavioral symptoms, need to be considered for future studies. Examples of more specific instruments include the Agitated Behaviors Mapping Instrument (Cohen-Mansfield, Werner, & Marx, 1989) and the Agitated Behavior Rating Scale (Bliwise & Lee, 1993) and modified Agitated Behavior Rating Scale (Woods & Dimond, 2002).

Graneheim, Norberg, and Jansson (2001) reported a case study of a 78 year old female, with an MMSE score of 1/30 residing in a residential home in Sweden who was observed as she interacted with direct-care staff members while they assisted her with bathing and dressing. The relationship between direct-care staff's social interaction behaviors and the resident's behaviors emerged as four themes: privacy, identity, autonomy, and security. For example, when a staff member undressed her with no explanation, the resident became physically violent and covered herself (privacy). When the resident threw things or banged a table, she would stop this behavior if the staff affirmed her by being physically at her side. If the resident was hallucinating and the staff smiled and informed her about what was going on, she was cooperative and did not exhibit physical violence (identity). When the staff ignored the resident's questions, the resident continued to repeat the question and rejected the care of that particular staff member (autonomy). When the resident was found in another resident's room, and the staff held her hand and gently guided her to her own room, then the resident accompanied the staff person (security) without incident. The descriptions in this case study suggests that BSDs are a meaningful expression for PWD, and that direct-care staff's careful listening and appropriate response contributes to a decrease in behavioral symptoms.

Skovadahl, Kihlgren and Kihlgrenn (2003) observed social interactions during the morning care of 2 Swedish nursing home residents and 9 direct-care staff members. The 2 female residents were 85 and 92 years old respectively. Both were diagnosed with moderate to severe dementia. Among the 9 staff members, 6 reported difficulty in dealing with the residents' behavioral symptoms, while 3 staff members reported no difficulty. Six events (as part of the morning care) were videotaped and the conversations between the staff and resident were transcribed for content analysis. Two main themes were reported: 1) being involved (positive

interaction), and 2) being confined to routines (negative interaction). When a direct-care staff member repeated instructions in a calm way with respect (positive interaction), residents' behavioral symptoms were reduced and the resident cooperated with the care. By contrast, behavioral symptoms increased when staff members ignored the residents, using their power to complete their tasks (negative interaction). The results support the importance of positive interactions (e.g., listening to the resident, work calming, and being at eye-level with the resident) to decrease behavioral symptoms.

Based on the Person-Environment model, Moore (1999) explored how environmental factors, including both the physical and social environment, affected PWD in a special care unit in a Mid-west US city. Residents with dementia (N = 12) and staff were observed during mealtime. Further demographic information of the residents was not described. Although BSDs were not the target variable in this study, behaviors appeared occasionally while the residents interacted with the staff. In terms of social interactions, three themes emerged when staff communicated with the residents: 1) *befriending*, 2) *suggesting*, and 3) *invading*. For example, when a staff member approached a resident with affection and provided individual attention, this behavior was termed *befriending*. When a staff member suggested choices of food, this behavior was termed *suggesting*. The most frequently observed staff member approach to residents was *invasion*, such as when one staff member talked with another about the older adult's private matters in front of the resident without engaging the resident in the conversation. After their conversation, the resident rejected the staff member's offer of help and yelled (invading). These findings provide several insights. The quality of the staff member's interactions affects BSDs. This study suggests that *befriending* or *suggesting* decreases BSDs in contrast to *invading*, which elicits or increases such behavioral symptoms.

Few studies examining the relationship between the quality and context of social interactions and behavioral symptoms exist. The results of these studies are difficult to generalize due to the small sample sizes. Nonetheless, these studies support the following arguments. First, although PWD have limited expression, they usually have the capacity to communicate verbally and nonverbally. For instance, PWD are often able to respond nonverbally by smiling, approaching others, nodding, and touching. Nonverbal communication is more commonly observed for those older adults in the late stages of dementia (Fitzgerald, 2001). Second, BSDs may be meaningful expressions of need, such as posited by the Need-Driven Dementia-Compromised Behavior model (Algase et al., 1996). Third, quality of social interaction is a more critical element of communication than quantity of social interaction and significantly related to the frequency and intensity of BSDs. Some examples of the quality of social interactions (i.e., dementia competent social interaction behaviors) include the use of a calm tone of voice, slower speech, simple questions, eye-contact, gentle touch, and the use of simple, clear language (Levy-Storms, 2008; Miller, 2008; Smith & Buckwalter, 2006).

Culturally competent social interaction

Cultural competence is defined as "a set of congruent behaviors, attitudes, and policies that come together in a system, agency or amongst professionals and enables that system, agency or those professionals to work effectively in cross-cultural situations" (Cross, Bazron, Dennis, & Isaacs, 1989). In terms of social interaction, culturally competent communication in health care system, such as nursing homes, refers not only health care providers' ability to be aware of socio-cultural factors that may influence on residents' behaviors, but also their ability to communicate effectively with patients from diverse socio-cultural backgrounds (Betancourt & Green, 2010).

The need for culturally competent communication skills might be higher for PWD who have difficulty understanding and expressing their needs (Innes, Ashraf, Ismail, & Mackenzie, 2001; Williams, 2008). Thus, ethnic minority older adults with dementia may feel more comfortable communicating in a culturally familiar language to the ethnic minority older adults.

Although language is only one aspect of culturally competent care, few studies examined other aspects of social interactions (i.e., verbal and non-verbal forms of communication) in ethnic minority older adults with dementia. One study supported the use of the patient's native language when administering psychological tests. Ekman et al. (1994) observed 20 Finnish immigrant NH residents with dementia in Sweden. Although all participants were bilingual before they were diagnosed with dementia, the Finnish participants obtained lower scores on neuropsychological tests when Swedish-speaking clinicians conducted tests compared to the results of the tests when Finnish-speaking clinicians conducted the same tests. These findings suggest that PWD may lose their abilities to comprehend a second language as dementia progresses and that a first language may be critical for assessing and optimizing their functional ability.

The use of native language may also contribute to decreased BSDs in ethnic minority older adults with dementia. If the residents experience frustration due to language barriers, in addition to their cognitive impairment, that in turn might elicit or increase BSDs. Runci, Doyle, and Redman's study (1999) found a significant association between the use of native language and problematic vocalization, one of the prevalent BSDs, supporting the use of native language with PWD. The researchers examined whether language affected music therapy for PWD. Using a longitudinal A-B design (i.e., alternating treatment design), one Italian immigrant female with dementia received two interventions: an intervention with English-language music (E), and an

intervention with Italian-language music (I). The participant had immigrated to Australia over 30 years prior to testing and was able to speak English fluently before she was diagnosed with dementia. Problematic vocalization, as evidenced by repeated words and aggressive verbalization, was observed for a 10-day baseline and a 10-day intervention period. Problematic vocalization was recorded three times daily (i.e., 10 a.m., 1 p.m., and 4 p.m.) for 20 minutes in a 30-second block. Problematic vocalization decreased after both music therapy interventions provided, however, there was a significant decrease when music was presented in Italian compared to music in English (t = -11.20, p < 0.01). This study lends support for the use of a familiar language to increase an intervention's effect to potentially reduce or prevent BSDs. Nursing home staff should be trained to speak at least simple words in the native languages of residents, such as those frequently used while assisting with activities of daily living. Moreover, staff members need to understand non-verbal forms of communication such as hand, body language and facial expressions (Chahal, 2004; Hubbard et al., 2003; Salimbene, 1999).

Although the Runci et al. study is meaningful for exploring a language-relevant intervention for an immigrant PWD, the study has several limitations. Because the resident's antidepressant medication dosage was increased between the baseline and intervention periods, the results may have been biased by a medication effect. In addition, with no wash-out period between each of the interventions in the A-B design, a potential carry-over effect may have resulted. For example, the results may have been different depending on which language, Italian or English, was presented first. In addition, because the behavior score was aggregated daily, the timing of the intervention for effect is unclear. Other limitations include that only one participant was observed, and that information about music preferences was not solicited from family members. Such limitations could potentially confound the results. Replicating this study with a

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larger sample, minimizing the confounding variables, could provide better information that may clarify the relationship between culturally competent social interactions and BSDs.

While the exact relationship between culturally competent social interactions and BSDs are unknown as they relate specifically to US Korean-American NH residents, the Runci et al. support the argument of one aspect of culturally competent social interactions, the use of the resident's native language, influences BSDs regardless of a residents' ethnicity. Since this study focused solely on language, more studies are needed that consider other aspects of social interactions, such as non-verbal communication (e.g., body language, facial expression). In addition, because these studies are from Sweden and Australia, further studies are needed to understand the relationship between social interactions and behavioral symptoms in ethnic minority older adults with dementia, including Korean-American older adults who reside in the US.

Culturally competent social interaction for Korean American older adults with dementia

The relationship between direct-care staff's competence in social interactions and the behavioral symptoms of KA older adults with dementia is unknown. Since KA older adults tend to have retained their native language and culture (Lee, 2007), they may respond better to a culturally familiar physical and social environment.

Ninety-three percent of KA older adults were reported as foreign-born immigrants in 2000 (Korean American Coalition - Census Information Center, 2003). Many of these older adults came to the US to help their adult children, at their adult children's invitation (Kauh, 1999). Technological developments, such as cable television and the Internet make it possible for KA older adults to preserve Korean culture and language (Min & Kim, 2010) although they live in the US where the culture, language, and ethnic backgrounds are different. Hence, KA older

adults usually prefer to live in large cities, such as Los Angeles and New York, and urban areas where Korean stores are available and they can live without speaking English.

According to the American Community Survey (Census, 2008), 78.2% of KAs speak a language other than English, and 46.9% speak English less than "very well". KA older adults are likely to have lower levels of English proficiency and lower degrees of acculturation to American culture than younger KAs who may be ethnically Korean, but first, second, or third generation American. Socio-cultural barriers beyond language, such as lack of proficiency in English, poor health conditions, loneliness, difficulty using transportation, low income, and housing problems have contributed to the older adults preserving their cultural embeddedness (Kim, 1997; Koh & Bell, 1987; Lee, 2007). Moon and Pearl (1991) noted that Korean immigrant older adults felt more isolated than younger Korean immigrants. In terms of health, Sohn (2004) found that 69% of the KA older adults reported fair or poor health; 21% did not have insurance, and 31% had not visited a medical doctor within the previous 12 months.

KA older adults report that if they were to enter a nursing home, they would like to reside in a nursing home that provides culturally competent care (Shin, 2008), because a culturally familiar environment would provide them with a sense of belonging and psychological comfort. Kim (2010) interviewed 26 KA older adults residing in a New York NH. Regardless of their length of stay in the US, all participants were not acculturated into the American culture and wished to maintain a Korean way of life in the NH. This desire included interacting with direct-care staff members who shared the same ethnic and language background, because these residents experienced communication difficulties with non-Korean staff. They simply felt more comfortable with Korean staff. KA older adults, who spoke Korean most of their lives and whose

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English proficiency was poor, wanted to preserve and rely on Korean culture, a culture that incorporates a deep-seated respect for older adults.

Respect for older adults is a cultural norm among Koreans. While respect for older adults is a cultural norm among several other ethnic groups, in Korean culture this is a strong cultural norm influenced by Confucianism. This ideal of respect for older adults is demonstrated by family and publicly based 'filial piety', a societal norm that requires children's support of their older parents both financially and emotionally, and respect for the older adults' wisdom, experience, and knowledge (Sung, 1998). For more than two thousand years, Koreans have practiced specific behavioral and linguistic expressions of respect for older adults. KA older adults may feel uncomfortable if direct-care staff members are not aware of this cultural expectation and use culturally inappropriate communication styles. If direct-care staff members use these behavioral and linguistic expressions of respect while caring Korean residents, KA nursing home residents' behavioral symptoms may decrease or not be elicited

The need for cultural familiarity may be even more pronounced in KA older adults with dementia because PWD are more vulnerable to environmental stressors than older adults without dementia. A culturally familiar social and physical environment in the NH might help reduce stress that is often associated with BSDs (Runci et al., 1999). However, non-Korean direct-care staff members are likely to provide care for KA older adults. One of the potential barriers to cultural familiarity is that the direct-care staff members may have little knowledge or understanding of the Korean culture and language. Such cultural confusion can lead to incompetent social interactions that may contribute to BSDs. If direct-care staff members are aware of cultural norms and if they follow culturally appropriate linguistic and behavioral guidelines while providing care for KA older adults, BSDs may not be elicited or may decrease.

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Conclusion

The US has an ethnically diverse society. In 2009, 19.9% of people aged 65 and over were minorities, including African-Americans (8.3%), Hispanic (7.0%), and Asian or Pacific Islander (3.4%) (Administration on Aging, 2010). Because the number of ethnic minority older adults is increasing, culturally competent care has been emphasized to meet their health care needs and improve their quality of life (Lewis & Kirchen, 1996; Tripp-Reimer, 1999). Studies of ethnic minority older adults residing in nursing homes in the US are rare, however. Furthermore, studies of the social interactions between direct-care staff members and nursing home residents who have different cultural backgrounds are even more rare. Two studies (Choi, 2001; Runci et al., 1999) support the argument that the social interaction behaviors of direct-care staff affect BSDs in ethnic minority older adults. However, both studies only considered one aspect of social interaction. Specifically, the Runci et al. study measured only one aspect of culturally competent social interactions, i.e., the use of the resident's native language, when providing music therapy. The other study (Choi) did not consider cultural relevance in social interactions. In addition, in the Choi study, social interactions referred only to the frequency of visitor or staff contact with residents, regardless of the quality of social interactions.

One conclusion that can be drawn from the literature is clear; direct-care staff's social interaction behaviors may be related to BSDs. Although the findings regarding the relationship between the number of visitors or contact with staff members (i.e., quantity of social interactions) and the occurrence of BSDs are inconsistent (Chen et al., 2000; Choi, 2001; Kolanowski & Litaker, 2006), the results nonetheless clearly imply that social interactions are related to frequency of the BSDs. This finding may apply to PWD, including ethnic minority groups other than KAs.

Second, competent social interaction behaviors (i.e., quality of social interaction) directly imparted by the direct-care staff members also affect BSDs. Such competent social interactions of direct-care staff members include not only dementia competent social interactions – e.g., speaking slowly, using simple words or phrases, making eye contact, and allowing extra time after giving instructions in order for the resident with dementia to process the information – but also culturally competent social interactions for ethnic minority older adults.

Third, health care providers need to understand ethnically specific social interactions (i.e., appropriate verbal and nonverbal communications), so as not to elicit or increase BSDs. For example, because many KA older adults are immigrants and have preserved Korean culture and language, KA older adults with dementia may feel more comfortable when culturally familiar communication is used. In addition to their cognitive limitations and language barriers, cultural conflicts may make KA older adults more vulnerable when interacting with non-Korean direct-care staff members. Culturally competent social interactions for KA older adults involve direct-care staff members employing verbal and nonverbal communication skills that respect older adults. Given few studies regarding effective verbal and non-verbal communication with KA older adults with dementia in US nursing homes coupled with the need to explore interactions that may alleviate behavioral symptoms, Kim and Woods (2012) expanded upon Sung's (2001) 'examples of forms and expression of respect while interacting with older adults in public' and developed guidelines for culturally competent social interaction such as using the polite expression when speaking Korean. These examples of culturally competent social interaction would not be difficult to introduce and implement in an NH environment, even by non-Korean staff.

Because both dementia competent social interaction and culturally competent social interaction for KA residents with dementia are based on respect for older adults, it is difficult to distinguish clearly between them. However, some of the more culturally sensitive factors include ways of speaking to Koreans. For example, Korean may be spoken in a casual manner (i.e., *Yesamal*) or in a more polite manner (i.e., *Jondaemal*). When direct-care staff members speak to KA older adults, the older adults expect to hear the language (or tone) in *Jondaemal*; otherwise, the speaker would be considered to be disrespectful and impolite.

The perception of filial piety has changed over time with societal changes such as a decrease in family size, the preference of the younger generation for more individualistic lifestyles, and migration to cities and urban areas. Despite these changes, however, behavioral and linguistic etiquette towards older adults continues to be an important aspect of Korean society.

In addition, it must be noted that not only Confucianism but many other cultures and religions have a strong background of respect for older adults, and that showing respect for older adults is not unique to the Asian society. However, for KA older adults with dementia who reside in US nursing homes, this particular aspect of their culture appears to be especially important for their comfort and influences the mitigation of BSDs such as restlessness and wandering behavior (Son & Kim, 2006; Son, Therrien, & Whall, 2002).

Recommendations

Based on these conclusions, recommendations for future studies are as follows. First, more descriptive studies of ethnic minority older adults, including KA older adults who reside in US nursing homes, are needed. Such studies should include data such as: 1) the number of individuals who are diagnosed with dementia; 2) the frequency and intensity of BSDs; 3) factors

related to the BSDs, including verbal and nonverbal communication between staff and residents with different cultural backgrounds and with the same cultural background as each other; and 4) the dyadic relationship between direct-care staff's dementia/culturally competent social interactions and BSDs. The findings will provide beginning knowledge to develop culturally supportive interventions for ethnic minority older adults, including KA older adults.

Second, studies are needed to develop social interaction assessment tools that are applicable to specific ethnic groups and that staff can readily access and use. Because each ethnic group has unique cultural needs and preferences, a culturally competent social interaction scale should reflect not only language, including ethnic minority groups' English proficiency, but also socio-cultural factors, such as level of education, length of stay in the US, and belief systems.

Third, researchers need to test the two theories (i.e., EMA, PLST) and explore other theoretical frameworks to find the best model to guide clinical practice. This paper posited that the environment specifically, the quality of the social interactions, used by direct-care staff members, may influence PWD's behavioral symptoms. Thus, environmental modification, utilizing dementia and culturally competent social interactions, may be critical. On the other hand, the relationship can be understood using another theoretical perspective, such as a Person-Centered Care (PCC) framework, which promotes care that puts a person at the center (Penrod, Yu, Kolanowski, Fick, Loeb, & Hupcey, 2007). The PCC emphasizes respecting a person's values, beliefs, and social care needs (Manley, Hills, & Marriot, 2011). Although there are dearth of studies on the culturally specific aspects of the PCC, knowing a person's cultural expectation and using culturally familiar verbal and non-verbal communication is practicing one of the principals of the PCC model (Mullay, Schofield, Clarke, & Primrose, 2011).

Finally, studies that explore the relationship between social interactions and BSDs should consider using observational methods. Up to now, researchers have used more indirect methods (e.g., proxy reports) than direct methods (e.g., observations, videotapes) due to the convenience of data collection of some of the indirect methods. Because indirect methods depend on a caregiver's memory, and are influenced by expectations, the results may be biased (McCann, Gilley, Hebert, Beckett, & Evans, 1997; Woods, Bushnell, Kim, Geschwind, & Cummings, 2009). In addition, indirect methods may not capture information such as tone of voice, physical and visual cues/behavior, the intensity of BSDs, and the sequence of behaviors.

In summary, specific culturally familiar social interactions, and the effects of such interactions on the BSDs of ethnic minority older adults, are unknown or not fully understood. Nonetheless, culturally competent social interaction is a concept that has been emphasized in the care of ethnic minorities, including KA older adults. Despite the increasing KA population in the US, studies on KA older adults with dementia residing in nursing homes and social interactions with non-Korean direct care staff members are rare. Future studies that examine the relationship between both dementia competent and culturally competent social interactions and the behavioral symptoms of ethnic minority older adults with dementia will provide fundamental knowledge to the health care community, knowledge that in turn may lead to the development of culturally appropriate and supportive interventions for ethnic minority older adults, including KA older adults.

CHAPTER III

The Development of Direct-care Staff Social Interaction Coding Schemas for Nursing Home

Residents with Dementia

Abstract

Two social interaction coding schemas were developed to measure the dementia competent (DSI) and culturally competent social interaction (CSI) of direct care staff for persons with dementia in a Korean American nursing home. A pilot study was conducted to assess: content validity, inter-rater reliability, feasibility, and the ease of use of both coding schemas.

An expert panel evaluated the content validity of the DSI/CSI. Two research assistants (RAs) simultaneously observed and recorded staff's social interaction encounter during care activities. Twenty-three morning care activities were recorded over a 3-day period. The Index of Content Validity score for the CSI and the DSI was 0.80 and 0.88, respectively. Cohen's Kappa ranged from 0.73 to 0.83 for the DSI and 0.69 to 0.82 for the CSI, indicating good to very good inter-rater reliability. RA interviews noted that schemas were easy to use and feasible.

Background

The United States (US) is facing an unprecedented growth of ethnic minority older adults, the number of which is expected to rise 26% by 2030 (Barnes & Bennett, 2000; Center for Disease Control, 2007). In addition, estimates indicate that by 2050, between 11 and 16 million adults will be affected by dementia (Alzheimer's association, 2011; Hebert, Scherr, Bienias, Bennett, & Evans, 2003). Dementia is frequently accompanied by behavioral symptoms such as restlessness, problematic vocalization, and wandering behaviors that often lead to fear and avoidance of caregivers (Everitt, Fields, Soumerai, & Arorn 1991; Middleton, Stewart, & Richardson, 1999), medication overuse (Lovheim, Sandman, Kallin, Karlsson, & Gustafson,

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2006; Sproe, Horgas, Smyer & Marks, 1992), early nursing home (NH) placement and increased staff turnover (Yaffe et al., 2002). As the number of ethnic minority older adults increases, the occurrence of dementia and related behavioral symptoms is likely to also increase in ethnic minority groups.

As ethnic diversity increases in the US, the need for culturally competent care for persons with dementia (PWD) becomes paramount. Minority older adults prefer to receive care in ethno-specific NHs, where they experience familiar languages and environments (Chan, 2007; Ekman, Norberg, Wahlin, & Winblad, 1995; Shin, 2008; Westbrook & Legge, 1992) - environments that provide a sense of belonging and psychological comfort (Son & Kim, 2006). One of the potential barriers to cultural familiarity is that most of the direct-care staff members, such as Certified Nursing Assistants (CNAs), are not familiar with ethnically specific cultural verbal and non-verbal communication. In addition to the cognitive limitations already present, cultural and language barriers may compound miscommunication between ethnic minority older adults, such as Korean-American (KA) older adults, and direct-care staff members.

Approximately 1.6 million KAs are living in the US, and more than 1 million KAs speak Korean at home (Census, 2010). Since many KA older adults are immigrants who have retained their Korean culture and language, KA older adults with dementia likely feel more comfortable using culturally familiar verbal and non-verbal forms of communication. If direct-care staff members use a different language with little understanding of the PWD's culture, these differences may result in a cultural mismatch. The resultant cultural confusion and inappropriate social interactions may contribute to BSDs. However, there is a paucity of research that focuses on culturally competent care provided by direct-care staff for KA older adults.

Currently, there are few reliable instruments available to measure the competence of direct-care staff in social interactions with PWD of diverse cultures. Given that direct observation is more accurate than proxy reporting (McCann, Gilley, Hebert, Beckett, & Evans 1997), two social interaction-coding schemas were developed to measure the dementia competent social interaction (DSI) and culturally competent social interaction (CSI) of direct-care staff members. This pilot study was conducted to assess: 1) content validity of the coding schemas, 2) inter-rater reliability of the coding schemas, and 3) feasibility and the ease of use of the DSI and the CSI by trained research assistants (RA).

Methods

Sample

Six direct-care staff participants were recruited for this pilot study from a KA - NH in a large urban area where 97% of residents are KA older adults. Criteria for participation included: 1) being non-Korean, 2) being non-fluent Korean speaker, 3) having worked at least three months in the NH, and 4) anticipating working in the NH during the three-day observation period.

Instrument development

The Dementia Social Interaction (DSI) Coding Schema was developed based on a review of the literature (Grosch, Medvene & Wolcott, 2008; Levy-storms, 2008; Miller, 2008; Smith & Buckwalter, 2006) which address guidelines for dementia care, and the opinions of several gerontological nurse experts. Twenty-seven behavioral codes, including 12 dementia competent and 15 dementia incompetent behaviors, were selected from the literature as measurable and applicable to KA older adults in a NH (Table1-1).

The Principal investigator (PI) developed the Culture Social Interaction (CSI) Coding

Schema by reviewing the literature (Sung, 2001), obtaining the opinions of Korean experts in

gerontological nursing, and the PI's own experience as a Korean descendant. This schema is

based on the cultural norm of Koreans, respecting older adults, which is embedded in verbal and

non-verbal communication. Specifically, Koreans consider a respectful attitude and behavior

toward older adults as a cultural norm. With a strong influence of Confucianism, Koreans have

been practicing forms of respect for more than thousand years (Sung, 1990). The CSI schema

consists of 17 behavioral codes, including 8 culturally competent and 9 incompetent behaviors

(Table 1-2).

Content validity

For content validation, professional experts evaluated and scored the contents of both DSI

and CSI, after Korean laypersons established face validity of the CSI. To calculate the content

validity score (CVI), content experts scored each item, ranging from 0 to 4 (not relevant,

somewhat relevant, quite relevant, and very relevant). The CVI score of 0 indicates lack of

agreement among the experts and the CVI score of 1 indicates complete agreement (Berk, 1990;

Cohen, 1960; Davis, 1992; Grant & Davis, 1997).

Procedure

The Institutional Review Board at the University of California, Los Angeles, approved this

study. Study participants (direct-care staff members) were approached individually by the

principal investigator and asked whether they would participate in the pilot study. Each gave

consent for the RAs to observe him/her when providing care to KA older adults in the NH.

Before collecting data in the NH, each RA completed an intensive seven-hour training

program, using videotaped behavior, followed by a practice at the NH to acquaint them with the

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study protocols, hand-held devices, and coding schemas. The definition of each social interaction behavioral code was clarified using examples. Both the DSI and the CSI used for observation were installed on the Pocket Observer 3.0 (Noldus, 2010) in the hand-held device. RAs practiced under the supervision of the PI until they demonstrated proficiency in all areas of the coding schemas, and until the inter-rater reliability between the PI and RAs reached .80 or higher using Cohen's kappa (Sim & Wright, 2005).

RAs directly observed 32 encounters of direct-care staff with KA older adults during morning care (e.g., dressing, bathing, combing and transferring), between 8am -11am, for three consecutive weekdays. Observations were coded continuously whenever the target behaviors occurred. Observational data was downloaded from the hand-held device to The Observer XT (Noldus) for data analysis.

Data analysis

Inter-rater reliability was calculated using percent agreement and Cohen's kappa for each RA for the two coding schemas. To establish inter-rater reliability, two individual RAs recorded social interaction behaviors (DSI/CSI) for the same direct-care staff member simultaneously. Feasibility and ease of use of the DSI/CSI were determined by RA interviews during and after collecting data. Analyses were conducted with Observer XT software (Noldus).

Results

Four female (67%) and two male direct-care staff members (33%) participated in the study. The mean age of staff participants was 31 years (SD = 11.06), range 19-46 years. The average length of employment in the NH was 26.5 months (SD = 25.06), range 3-72 months. One direct-care staff member was mixed ethnicity, Hispanic and Japanese, while the others identified themselves as solely Hispanic. The primary language of all participants was Spanish. All could

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use simple Korean words that focused on functional activities, such as "sit" or "turn", or spoke limited English.

Content validity

According to gerontological experts' judgments, the content validity index (CVI) scores for the DSI coding schema and the CSI coding schema was .88 and .80, respectively. The CVI score, which is .80 or better, indicates that both coding schemas have good content validity, in other words, are relevant and appropriate measures (Berk, 1990; Cohen, 1960; Davis, 1992; Grant & Davis, 1997).

Inter-rater reliability

Inter-rater reliability of the DSI coding scheme varied from 0.73 to 0.83 for Cohen's Kappa and 75% to 84.62% for percentage agreement. The inter-rater reliability of the CSI coding schema varied from 0.69 to 0.82 for Cohen's Kappa, indicating good to very good agreement, and 76.92% to 84.21% for percentage agreement.

Feasibility

RAs completed 32 observations of direct-care staff interaction encounters with KA older adults over a 3 day observation period, indicating a sufficient number of interactions could be observed and coded at the specified times of day. RAs reported in post data collection interviews that both the DSI/CSI were feasible and easy to use.

Discussion

Two social interaction-coding schemas, DSI and CSI, were developed to measure Korean direct-care staff members' behavior while they assisted with the ADLs for KA older adults who resided in US-NHs. The findings suggested that both the DSI and the CSI coding schema were feasible to implement and to administer. In addition, the coding schemas met the basic

psychometric testing requirements for a new instrument, including inter-rater reliability and content validity.

However, the following limitations were apparent. First, since the CSI is specific to KA older adults residing in ethnically specific NH, it may not be generalized to other populations: for example, with KA older adults residing in mainstream NH, where most residents are non-Koreans. Second, the DSI items are not comprehensive in comparison to other instruments, such as the Person Centered Behavior Inventory (PCBI) (Grosch, Medvene, & Wolcott, 2008). The DSI items do not include some verbal behaviors, such as assessing comfort (e.g., "how are you feeling today?") and showing approval (e.g., "you look good today"), which are indicated in the PCBI. Those were not applicable to this pilot study because verbal conversation between direct-care staff and KA older adults was rarely observed, due in part to the language barrier. However, we observed that the direct-care staff members used one or two Korean words related to specific care activities (e.g., sit, turn, bathe, and incontinence care). If the direct-care staff members did not know any appropriate Korean words, they spoke one or two words in English to elicit cooperation from the KA older adults.

It is also difficult to distinguish clearly between the DSI and the CSI behavioral items. Specifically, Korean speech is obviously applicable to the CSI because different Korean expressions exist between being casual and polite. For example, one of frequently used was "sit down" while dressing or providing incontinence care. If direct-care staff members use Korean, they supposed to use the honorific expression, such as "An-jeu-se-yo" or "An-jeu-sip-si-oh", not saying "An-ja", which is informal way to friends or younger persons. On the other hand, some behavioral items can be both applicable to the DSI and the CSI because both coding schemas are based on respect for older adults. Although some items in the CSI, such as body position and

proximity, are more culturally sensitive than those of the DSI, it is still debatable whether some behavioral items should be included in either coding schema. For example, tone of voice and eye contact are applicable to both coding schemas. Further studies, such as interviewing KA older adults without dementia about their expectations of culturally competent social interactions, may help to refine the CSI.

Based on this study's findings and the noted limitations, recommendations for future studies are as follows. First, since this study was a small pilot study, further robust psychometric testing is needed. For example, the construct validity can be evaluated in ways, such as contrasted groups and hypotheses testing. Comparing DSI and social interaction items of other instruments, such as the PCBI and the Dementia Care Mapping, can assess concurrent validity. Second, testing with a larger sample in various settings would alter these initial findings. Since this study was conducted in an ethnically specific NH, where most residents are KA older adults, the coding schemes should be tested for direct-care staff assisting KA older adults in NHs, where few KA older adults reside and resources for Korean language and culture are not as available as those in an ethnically specific NH. Finally, both the CSI and the DSI coding schemas should be tested for clinical research, for example, by exploring the relationship between direct-care staff's social interaction behaviors and NH residents' behavioral symptoms of dementia.

In summary, this study provides potential schemas to assess direct-care staff's competence in social interactions as a starting point to improve dementia care for ethnically minority older adults residing in NHs and provides preliminary support for the proposed coding schemas. Further psychometric evaluation is necessary to validate these coding schemas so that these may be used in clinical research and potentially in clinical practice.

Table 1-1. Dementia Social Interaction coding schema (DSI)

Competent behavior	Incompetent behavior
1. Introduced himself/herself	1. Did not introduce himself/herself
2. Called the resident's name	2. Did not call resident's name
3. Informed resident of task before providing care	3. Did not inform resident
4. Instruction given one by one	4. Instructions given more than once at a time
5. Used simple and familiar words	5. Used inappropriate words (e.g., slang)
6. Used a gentle pace	6. Used a hurried pace
7. Spoke slowly	7. Spoke fast
8. Provided continuous assistance	8. Provided sporadic assistance
9. Spoke in a calm tone of voice	9. Spoke in a monotonous tone of voice/ yelling
10. Used occasional eye-contact	10. Did not make an eye-contact
11. Used gestures	11. Did not use gestures
12. Gave simple choices	12. Did not give choices
	13. Unnecessary touching
	14. Argue/ confront
	15. Talk about residents in her/his presence

Note. Items were selected from Grosch, Medvene, & Wolcott, 2008; Levy-Storms, 2008; Miller, 2008; Smith & Buckwalter, 2006

Table 1-2. Korea-culture Social Interaction coding schema (CSI)

Competent behavior	Incompetent behavior
1. Greeted	1. Did not greet
2. Called resident's name appropriately	2-1. Did not call resident's name
	2-2. Called resident's name inappropriately
3. Spoke in Korean: Polite	3. Spoke in Korean: Casual
4. If needed, interrupted with notice	4. Interrupted without permission, notice
5. Affectionate touching:	5. Affectionate touching:
5-1. Back	5-1. Head
5-2. Shoulder	5-2. Face
5-3. Hand	
6. Used occasional eye-contact	6-1. Did not make an eye contact
	6-2. Stared at a resident
7. Used face to face proximity:	7. Used face to face proximity:
7-1. Around arm length	7-1. Less than arm length
	7-2. More than arm length
8. Eye level:	8. Eye level:
8-1. Looked up resident	8-1. Looked down resident
8-2. Used same eye level with resident	
	9. Used of unfamiliar language (e.g.,Spanish)

CHAPTER IV

The Association between Direct-care staff's Competence in Social Interaction and the

Behavioral Symptoms of Dementia in Korean-American Nursing Home Residents

Abstract

Behavioral symptoms of dementia (BSDs), frequently observed in nursing home (NH)

residents with dementia are very challenging to caregivers. Few studies have examined the

association between these behaviors and the quality of social interactions that may contribute to

these behaviors. NH residents with dementia are frequently cared for by direct-care staff

members, whose ethnic background is different from the residents, a difference that may

contribute to BSDs. This study examined the association between non-Korean direct-care staff

members' competence in social interactions and BSDs in Korean-American (KA) older adults.

Ninety-three resident/staff dyad care interactions were analyzed. Total BSDs occurrence

was 4,090. Restlessness (39%) and problematic vocalization (25%) were observed most

frequently. There was a trend for a negative relationship between dementia competence in social

interactions and BSDs during morning care, when cultural competence in social interactions was

low. In the afternoon, there was a negative trend between BSDs and dementia competence that

interacted with cultural competence. When cultural competent was high, BSDs decreased as

more rapidly as dementia competence increased. This association was more prominent among

those with high intensity BSDs (N=10). The findings suggest that both dementia competent and

culturally competent care are critical to decrease BSDs, and that there is a time of day effect.

One in eight older adult in the United States (US) is diagnosed with dementia, numbers that are estimated to increase from 11 to 16 million by 2050 (Alzheimer's Association, 2012). Dementia is frequently accompanied by behavioral symptoms, which are observed in 78-83% of nursing home (NH) residents with dementia (Bedford, Melzer, & Guralnik, 2001; Seitz, Purandare, & Conn, 2010). Behavioral symptoms of dementia (BSDs) including vocal or verbal activity, such as mumbling and yelling, and physical activity, such as restlessness, wandering and tapping (Bliwise & Lee, 1993; Cohen-Mansfield & Billing, 1986), become a concern for caregivers and health care providers, frequently leading early NH placement, staff turnover, and medication overuse (Middleton, Stewart, & Richardson, 1999; Spore, Horgas, Smyer, & Marks, 1992; Yaffe et al., 2002). Despite the increasing concerns about BSDs, studies of these behaviors in ethnic minority older adults are rare. Furthermore, studies of social interactions between direct-care staff, such as certified-nursing assistants (CNAs), and residents in NHs who have different cultural backgrounds are even more rare.

Estimates suggest that the number of ethnic minority adults over age 65 years will increase up to 24% by 2020 in the United States (US) (Administration on Aging, 2012). This estimation coupled with the increase in the number of older adults with dementia, will likely lead to a corresponding increase in the number of ethnic minority NH residents with dementia. Ethnic minority NH residents are frequently from a culture that differs from the CNAs who care for them. They use a different language and may have little understanding of the residents' culture. These differences can result in a cultural mismatch. The resultant cultural confusion and inappropriate social interactions may contribute to BSDs. Thus, health care providers need to use

not only dementia appropriate but also culturally appropriate social interactions with ethnic minority NH residents, such as Korean-Americans (KAs).

Definition of terms

- *Behavioral symptoms of dementia (BSD)*: observable verbal, vocal, or physical activity that includes six behaviors: restlessness, escaping restraints, searching or wandering, tapping or banging, pacing or walking, and vocalization.

- *Social interaction*: direct-care staff members' verbal and non-verbal communication style while caring for NH residents.

- *Dementia-competent social interaction behaviors*: direct-care staff members' ability to be aware of and use dementia appropriate verbal and non-verbal communication skills while caring for NH residents. The dementia appropriate social interaction behaviors include making an eye contact, speaking slowly, keeping gentle pace, providing continuous assistance, speaking in a calm tone of voice, using gestures, and informing the resident before providing care.

- *Culturally-competent social interaction behaviors*: direct-care staff members' ability to be aware of and understand cultural differences that may effect residents' behaviors, and to use culturally appropriate verbal and non-verbal communication skills while caring ethnic minority NH residents. The culturally competent social interaction behaviors for KA older adults include greeting, using polite expression speaking in Korean, keeping proximity around arm length, not staring at older adults, and not calling the resident's first name.

Theoretical framework

Theoretical frameworks, such as the Progressively Lowered Stress Threshold (PLST) (Hall & Buckwalter, 1987) and the Ecological Model of Aging (EMA) (Lawton & Nahemow, 1973),

can help explain the influences that environmental factors, including social interactions, may have on BSDs. In brief, according to the PLST, the stress threshold of persons with dementia (PWD) for environmental stressors is relatively low compared to those without dementia. If the person is subjected to environmental stressors, their stress-threshold may be exceeded and can result in BSDs. Likewise, the EMA posits that if an older adult has few resources, meaning the older adult's ability to adapt to the environment is compromised, the influence of environment on the person's behavior may be stronger, requiring resources that the older adult does not have. For the purpose of this model, the CNAs' level of competence in social interactions is considered an environmental stressor, associated with BSDs in KA-NH residents. Residents with cognitive limitations may be more vulnerable to culturally unfamiliar verbal or non-verbal communication when interacting with non-Korean CNAs. The result may be BSDs.

Background

Several studies have found that dementia competent social interactions are associated with fewer BSDs. For example, when CNAs approached residents with a smile and provided care in a calm and systematic way, residents were more relaxed and calm. BSDs decreased compared to residents who interacted with task-oriented staff (Burgener, Jirovec, Murrell & Barton, 1992; McGilton, Sidani, Boscart, Guruge, & Brown, 2011; Skovdahl, Kihlgren, & Kihlgren, 2003). Similarly, BSDs were reduced when staff provided individual attention and offered choices to residents (e.g, food) (Moore, 1999). On the other hand, when CNAs did not respect a residents' privacy and did not inform the resident of care activities, residents' aggressive behavior increased and they refused care (Graneheim, Norberg, & Jansson, 2001). Additionally, if CNAs talked about the resident in front of him/her with their coworkers without engaging the resident, the resident became verbally aggressive and did not cooperate with care (Moore, 1999).

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Although these studies support the importance of dementia competent care for PWD, the results are difficult to generalize because the sample sizes of these studies were small.

Considering that ethnic minority older adults, if in an NH, prefer to stay in an ethno-specific NH and expect to receive care from those who have the same cultural background and language (Chan, 2007; Heikkila & Ekman, 2003; Shin, 2008; Westbrook & Legge, 1992), it becomes critical to provide both dementia and culturally competent social interactions for ethnic minority older adults. Few studies have been conducted to examine the importance of culture and language when caring for ethnic minority older adults. One study (Runci, Doyle, & Redman, 1999) examined the relevance of native language with music therapy for an immigrant resident with dementia. Although the resident was fluent in both languages prior to diagnosis, the occurrence of BSDs was significantly less when providing music using the native language (i.e., Italian) compared to the second language (i.e., English). Although this study examined only one resident, the findings suggest the importance of culturally familiar language.

While dementia competent social interaction is critical, culturally competent social interaction must also be considered in caring for ethnic minority older adults with dementia. However, studies to examine social interactions associated with BSDs, particularly in ethnic minority older adults, are rare. In addition, studies considering cultural competence related to BSDs are more rare. The purpose of this study was to explore the association between non-Korean CNAs' competence in social interactions and BSDs in KA-NH residents with dementia. The findings may help family caregivers and health professionals to better understand BSDs within the context of social interactions in an ethnically diverse community.

Methods

Study design

This study used a longitudinal repeated measures design to study KA-NH residents and caregivers. All research activities were reviewed and approved by the University of California, Los Angeles Institutional Review Board.

Sample and setting

This study was conducted in an NH in Los Angeles, California, where more than 90% residents are KA older adults.

Resident. A total of 20 KA-NH residents participated in this study. Prior to the beginning of the study, a registered nurse (RN) screened 120 residents for eligibility. Inclusion criteria for residents were 1) Korean American immigrants; 2) ≥ 65 years, 3) a diagnosis of dementia according to their medical record; 4) resident in the NH for at least 2 months; 5) continued residency in the NH for the duration of the study; and 6) stabilized on medications for at least 1 month, particularly anti-psychotics, anti-depressants, anti-anxiety, neuroleptics or sedative-hypnotics. The administrator of the NH contacted the family members of the 54 potential participants, who met the inclusion criteria, and received permission to release contact information to the principal investigator (PI). The PI obtained written informed consent from the family members of 20/54. Research assistants (RAs) introduced themselves and explained the research process. Residents gave verbal assent prior to each observation.

Certified Nursing Assistants. A total of 28 CNAs were observed in the study. The director of the CNAs introduced the study to all CNAs in a staff meeting and received permission to provide a list of names of CNAs, who would assist with activities of daily living (ADL) for the 20 participants during the 3-day observation period. The PI recruited 28 CNAs, out of 32

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individuals approached. Inclusion criteria for direct-care staff members were: 1) non-Korean, 2) non-fluent Korean speaker, and 3) anticipated working in the NH through the duration of the study.

Measures

Descriptive information about residents and CNAs

Demographic data of residents was abstracted from each resident's medical record including medication, comorbid medical conditions, age, gender, and marital status. The *Korean version of the Mini-Mental State Examination (K-MMSE)* was used to verify cognitive status (Folstein, Folstein, & Mchugh, 1975; Kang, Na, & Hahn, 1997). This widely used screening tool for cognitive impairment provides a total score ranging from 0 to 30, with lower scores indicative of more severe cognitive impairment.

Demographic information was obtained from participating CNAs including age, gender, race/ethnicity, primary language, education, and length of working in the facility.

Residents' behavioral observation

The *Modified Agitated Behavior Rating Scale (mABRS)* was used to measure frequency and intensity of BSDs using direct observation (Bliwise & Lee, 1993; Woods & Dimond, 2002). The mABRS includes 6 six categories of behavior: vocalization, restlessness, escaping restraints, searching/wandering, tapping/banging, and pacing/walking. The ratings are coded on a four-point Likert-type scale for each point, ranging from not present (0) to high intensity (3). For example, intensity ratings for restlessness are: 0 = not present; 1 = low intensity, rhythmic purposeless movements of hands; 2 = medium or moderate intensity, repetitive manipulation of an object, facial distress; 3 = high intensity, large amplitude rubbing or picking. The percent agreement for the presence or absence of BSDs ranged from 85.5% - 96.8% for frequency with

kappa values ranging from 0.71 - 0.93 and from 83 - 89.5% for intensity with kappa values

ranging from 0.60 to 0.64 (Woods & Dimond).

CNAs' behavioral observation

Dementia Social Interaction (DSI). The DSI coding schema (Kim & Woods, 2002) consists of 27

behavioral codes, including 12 dementia competent and 15 dementia incompetent behaviors.

Inter-rater reliability of the DSI coding scheme varied from 0.73 to 0.83 for Cohen's Kappa and

75% to 84.62% for percentage agreement (Kim & Woods).

Culture Social Interaction (CSI). The CSI coding schema (Kim & Woods, 2002) is based on

cultural norms among Koreans, respecting older adults, which is embedded in verbal and non-

verbal communication. The CSI schema consists of 17 behavioral codes, including 8 culturally

competent and 9 incompetent behaviors. The inter-rater reliability of the CSI coding schema

varied from 0.69 to 0.82 using Cohen's Kappa, indicating good to very good agreement, and

76.92% to 84.21% for percentage agreement (Kim & Woods).

The correlation between the DSI and the CSI was 0.252, indicating that these coding

schemas are assessing different concepts, that of dementia competence and cultural competence.

Procedures

Prior to initiation of study activities, the research team was introduced to the NH site. The

PI reviewed the residents' medical records and administered the K- MMSE. CNA-participants

were individually interviewed to obtain demographic information. After both residents and

CNAs provided informed consent, the study data collection began.

Direct observation. The mABRS (Woods & Dimond, 2002) and social interaction coding

schemas (DSI, CSI) were installed on the observational computer software, the Pocket Observer

3.0 (Noldus, 2003) in hand-held devices (Panasonic®; Japan). RAs, who were bilingual (Korean,

English), recorded the CNAs' social interaction behaviors, using social interaction coding schemas (DSI, CSI). Based on the pilot study (Kim & Woods, 2012), observation times were selected when the most interactions were likely to occur. Morning care observations were selected between 8am - 10 am to include dressing, bathing, combing, grooming, oral care, and transferring out of bed. Afternoon care was between 3pm - 5pm to include undressing, incontinence care (change and/or toileting), and transferring to bed. Observations of CNAs/resident dyad interactions were made as unobtrusively as possible. Three RAs independently observed and recorded CNAs' social interaction behaviors and residents' BSDs simultaneously beginning when a CNA entered a resident's room to provide care. While one RA recorded the CNA's dementia social interaction behavior using the DSI coding schema, the other RA recorded the CNA's cultural social interaction behavior using the CSI coding schema. The third RA observed and recorded the resident's BSDs using the mABRS. Observations were coded whenever the target behaviors occurred. The two RAs, who observed the CNAs' social interaction behavior, stopped observation when the CNA left a resident after completing her/his tasks. The third RA continued to observe and record BSDs for 1 hour after the CNA left the resident's room. The maximum number of social interaction encounters per resident could be six over three days (2/day x 3days = 6).

RAs observed and recorded a total of 93 social interaction encounters of CNAs with residents during morning care, and afternoon care for 3 days within one week. Behavioral data were downloaded from the hand-held device to The Observer 5.0 (Noldus, 2003) at the research office each day after completing data collection. Data were then transferred to a Microsoft Excel spreadsheet to manage the dataset. The cleaned dataset was exported to SPSS 20.0 and/or STATA 12.0 for data analysis.

Validity and reliability of observations. Before collecting data in the NH, each RA had an

intensive 8-hour training session in standard protocols for using the hand-held device, the coding

schemas, and the mABRS until they became acquainted with them. RAs were trained for 6 hours

away from the NH, using videotaped behavior, followed by a 2-hour practice observation session

at the NH. During the initial training, each RA rated videos, and then compared their rating with

other RAs for the same video using the Observer XT, observation software. Definitions for BSDs

and social interaction behavioral codes were clarified using examples. If there were coding

differences, they were resolved by group discussion under the direction of the PI and a decision

was made. RAs practiced under the supervision of the PI until they demonstrated proficiency in

all areas of the coding schemas. To ensure the validity and reliability of behavioral observations,

2 RAs simultaneously recorded social interaction behaviors (DSI, CSI) for the same CNA. The

other 2 RAs simultaneously recorded BSDs for the same resident. The inter-rater reliability

between 2 RAs reached 0.70 or higher, using Cohen's kappa (Altman, 1991; Cohen, 1960) for

both social interaction behaviors and BSDs

Data analysis

Data was analyzed using SPSS 20.0 and/or STATA 12.0. Descriptive statistics were

computed for demographic information, MMSE, BSDs, and social interaction behaviors. For

data management, within-individual behavioral data were aggregated within each social

interaction encounter, determined by day (day1, day2, day3), and time of day (am, pm) for each

resident (i.e., 1st encounter = day 1, time of day = am; 2nd encounter = day 1, time of day = pm,

3rd encounter = day 2, time of day = am; 4th encounter = day 2, time of day = pm; 5th encounter =

day 3, time of day = am, 6th encounter = day 3, time of day = pm…..total number of encounters =

93). Total number of BSDs per encounter were computed by multiplying the frequency of each

behaviors' occurrence times the intensity score, then summing the 6 types of BSDs (i.e.,

vocalization, restlessness, pacing, searching, wandering, tapping and banging).

For the CNAs' behavior, we calculated the proportion of dementia competent behaviors

(dementia competent behavior/ dementia competent + dementia incompetent). The proportion of

culturally competent behaviors was calculated in the same way. For each CNA, the twelve-

dementia competent behaviors were summed to create the total number of dementia competent

behaviors for the morning encounters and afternoon for each CNA for each day. In the same

way, the fifteen-dementia incompetent behaviors were summed to create the total number of

dementia incompetent behaviors. Likewise, the eight-culturally competent behaviors were

summed to create the total number of culturally competent behaviors. The nine-culturally

incompetent behaviors were summed to create the total number of culturally incompetent

behaviors. We calculated the proportion of dementia and culturally competent behaviors by

dividing the competent by total behaviors (competent plus incompetent). The proportion of

dementia competent behavior and culturally competent behavior, and an interaction term for

each variable (culture*dementia) were used as a predictive variable for data analysis. We

hypothesized that cultural and dementia competent social interaction behaviors were not

independent, and therefore included an interaction term in the model. Table 2-7 displays the raw

data of 20 residents and 93 social interaction encounters.

Since the outcome variable was the count of BSDs with a positively skewed distribution,

the Poisson Regression Analysis was considered. However, upon further examination, the

variance of the dependent variable (total count of BSDs) was over-dispersed, that is, the

variances were larger than the mean (Cameron & Trivedi, 1998), violating the assumptions for

the Poisson model. A more appropriate analysis, the random effect negative binomial regression

model was used. This analysis is used for modeling count variables, usually for over-dispersed count outcome variables without an excessive number of zeros (Cameron & Trivedi). We accounted for repeated observations by including the participant as a random effect in the model (Hedeker & Gibbons, 2006). Since high intensity BSDs are some of the most distressing behaviors, residents who had BSDs with a high intensity of 3 (N =10) were analyzed separately. Data collected in the morning (8-10am) and in the late afternoon (3-5pm) were analyzed separately because we hypothesized that the time of day may influence BSDs.

First, 44 encounters in the morning (8-10am) and 49 encounters in the afternoon (3-5pm) of the 93 social interaction encounters were analyzed (N = 20). We hypothesized that persons with high intensity BSDs were more vulnerable to environmental stressors consistent with the PLST model (Hall & Buckwalter, 1987). Thus, we analyzed 27 encounters in the morning and 28 encounters in the afternoon (N=10). Statistical significance was set at $p \leq 0.05$ (2-tailed). We graphed the interaction between the two social interaction variables (i.e., dementia, culture) and BSDs for visual analysis.

Results

Certified-nursing assistants (CNAs)

Demographics. Twenty-eight CNAs, mean age 34 years (± 9.63; range 19 – 53 years), participated in the study. One CNA was African-American, while the others identified themselves as solely Hispanic. The primary language of all Hispanic participants was Spanish. Nineteen CNAs (67.9%) completed 12th grade while 6 (21.5%) had post secondary school. All CNAs were aware of simple Korean words, mainly focused on ADL, such as "sit" or "turn". However, 18 (64.3%) reported that they occasionally experienced a language barrier with KA residents while assisting with their ADL (Table 2-1).

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Dementia Social Interaction. The average proportion of CNAs' dementia competent social interaction behaviors of the 93 observations was 0.58 (± 0.23) in the morning and 0.70 (± 0.15) in the afternoon (Table 2-2). The CNAs' dementia competent behaviors included providing a gentle pace of care 83.87% of the time, and using simple words or phrases 97.92 % of the time when interacting with a resident. Observations of dementia incompetent behavior included not introducing themselves before assisting the residents 79.57% of the time, not addressing the resident by name 70.97% of the time prior to care, and entering a resident's room without knocking (i.e., not acknowledging the resident) and talking with another CNA during care 54.55 % of the time (Table 2-3).

Culture Social Interaction. The average proportion of CNAs' culturally competent social interaction behaviors of the 93 observations was 0.33 (± 0.21) in the morning and 0.44 (± 0.23) in the afternoon (Table 2-2). The CNAs' competent cultural behavior included addressing the resident appropriately such as *halmenonie*, a Korean term for grandmother, 54.30% of the time and making eye contact while assisting residents' with ADLs 51.65% of the time. Observations of CNAs' cultural incompetent behavior included not greeting the resident prior to care provision 72.2% of the time, using casual rather than polite speech when speaking Korean 84.63% of the time, and looking down a resident 81.32% of the time (Table 2-4).

Residents

Demographics. Of the 20 KA participants, 3 (15%) were male and 17 (85%) were female, with an average age of 87 years (± 7.23; range = 73 - 98 years). The mean length of stay in the NH was 29.55 months (± 2.21; range = 3 - 102 months). Fifteen residents completed the MMSE (2 refused, and 3 were unable to respond). Mean MMSE was 9.33 (± 8.00) with a median of 10,

indicating severe cognitive impairment. Eighteen residents (90%) were prescribed cardiovascular medications and 11 (55%) were prescribed antidepressants (Table 2-5).

Behavioral Symptoms of Dementia (BSDs). In 93 encounters, we observed and coded a total of 4,090 BSDs. Restlessness was the most frequently observed behaviors with 1,612 counts (39.41%), followed by problematic vocalization 1,041 counts (25.45%), banging/tapping, 967 counts (23.64%), pacing 257 (6.28%), escaping restraints 169 (4.13%), and searching, 44 counts (1.0%) (Table 2-6).

Social interaction and behavioral symptoms of dementia

The proportion of culturally competent social interactions influenced the degree to which dementia competent social interactions impacted BSDs. In general, during morning care (8-10am), there was a negative trend between BSDs and CNAs' dementia competence that interacted with cultural competence. While not significant, the expected count of BSDs decreased as the proportion of dementia competence increased in the presence of low cultural competence (between 0 and 0.5) (N=20) (β = 1.95, S. E = 3.04, p = 0.52). In the presence of cultural competence higher than 0.5 (between 0.5 and 1), however, the expected count of BSDs increased slightly as the proportion of dementia competence increased (Figure 2-3). This relationship was more prominent among those with high intensity BSDs (N=10; β = 4.43, S. E = 2.52, p = 0.08) (Figure 2-4).

In the late afternoon (3-5pm), there was a similar negative trend between BSDs and CNAs' dementia competence that interacted with cultural competence. The expected count of BSDs decreased as the proportion of dementia competence increased from 0 to 1, in the presence of a of cultural competence (between 0.2 and 1) and decreased more rapidly as cultural competence

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increased (N=20; β = - 4.03, S. E = 3.74, p = 0.28). Interestingly, when cultural competence was 0, BSDs remained unchanged, regardless of the proportion of dementia competence (Figure 2-5). The relationship was more prominent in the high intensity BSDs group (N=10; β = - 4.46, S. E = 3.59, p = 0.22) (Figure 2-6).

Discussion

The findings showed a trend of decreasing behavioral symptoms with increasing dementia competent social interaction, consistent with other studies (Burgener, Jirovec, Murrell, & Barton, 1992; Hart & Wells, 1997; Graneheim, Norberg, & Jansson, 2001; Moore, 1999; Skovadahl, Kihlgren, & Kihlgren, 2003). Results support the PLST (Hall & Buckwalter, 1987) and the EMA (Lawton, 1986) model, suggesting that if PWD's competencies are matched with the degree of environmental stressors (dementia and cultural competent), BSDs may decrease.

Although the results were not statistically significant, they suggest an interaction effect among dementia and culturally competent care and BSDs. The total count of BSDs was changed according to the degree of cultural competence and dementia competence. In particular, during afternoon care, as CNAs' cultural competence increased, BSDs decreased rapidly, interacting with dementia competence. This relationship was more prominent for those who showed high intensity BSDs (i.e., level 3-intensity on the mABRS). For example (Table 2-7), resident IDNO 100 (case number 4), exhibited 72 total BSDs at an intensity of 1 or 2 in the afternoon, when cultural competence was 0.14 and dementia competence was 0.67. As the cultural competence increased to 0.35 with same degree of dementia competence (0.67), the total number of BSDs decreased to 26 (case number 2). On the other hand, resident IDNO 104 (case number 30) exhibited 218 BSDs with intensity 3 in the afternoon, when cultural competence was 0.31 and dementia competence was 0.73. As cultural competence increased to 0.67 with similar degree of

dementia competence (0.79), total BSDs decreased to 97 (case number 28). The BSDs of resident with high intensity dropped rapidly as cultural competence increased. The first resident (100) with low level of intensity decreased from 72 to 26, while the resident with high level of intensity (104) decreased from 218 to 97. The rapid decrease in high intensity behaviors has important clinical implications. These high intensity BSDs are very disturbing to staff and other residents. One frequently observed clinical phenomenon is that high intensity BSDs in a few residents with dementia can be communicated to others who share the same space, thus increasing the overall level of BSDs (Woods & Mentes, 2006). If staff is able to intervene in a timely manner and decrease the high intensity behavior of a few quickly, the milieu can be calmed, thus decreasing the probability of further behavior escalation.

While preliminary, the results lend support the PLST model (Hall & Buckwalter, 1987), which proposes that PWD exhibit increasing BSDs as the day progresses in part because they are less able to integrate environmental stimuli. In our study, the total count of BSD was 2546 in the morning and 4026 in the afternoon. In addition, the average count of BSD was 55.35 (± 68.69) in the morning and 82.16 (± 106.78) in the afternoon, indicating more individual variability in the afternoon than in the morning. Without appropriate intervention, BSDs may occur repeatedly whenever the stress threshold is exceeded. Thus, as PWD are more vulnerable to environmental stressors in late afternoon, BSDs might not be elicited or decrease as appropriate interventions, such as competent social interactions are used later in the day. A behavioral intervention, such as music therapy (Vink, Birks, Bruinsma, & Scholten, 2011; Wall & Duffy, 2010) and therapeutic touch (Woods, Craven, & Whitney, 2005), may be effective if provided in the morning, when PWDs are less fatigued to prevent high level of behavioral symptoms in the afternoon (Burgio, Scilley, Hardin, & Hsu, 2001; Cohen-Mansfield, 2007; McCann, Gilley, Bienas, Beckett, &

Evans, 2004; Martin, Marler, Shochat, & Ancoli-Israel, 2000).

While not statistically significant, there was an effect of time of day. There appeared to be different effects of culturally competent social interaction on behavioral symptoms in morning and in the late afternoon. The effect of CNAs' cultural competence was more prominent in the afternoon than in the morning. The finding suggests that CNAs should use both dementia and culturally competent social interactions while caring for ethnic older adults. In addition, it also implies that the timing of culturally relevant intervention should be considered.

The effects of dementia and cultural competence on behavioral symptoms during morning care were more difficult to interpret. One explanation may be that morning care included numerous and varied care activities such as bathing and dressing, and transferring to a wheelchair as well as general "busyness" in the nursing home setting at this time of day that helps both staff and residents "get ready for the day". Several activities including volunteers' recreational activity, walking with a physical therapist, and activity program (e.g., music, mass, art and craft) can increase noise and crowding. In addition, there were more frequent interactions for longer periods of time in the morning compared to the afternoon. These varied activities may make BSDs be less amenable to dementia and cultural competent interactions. In other words, competent social interactions may exert less influence in the morning because of the influences from the complex interplay of environmental factors at this time. On the other hand, environmental stressors were relatively low in the afternoon. The activity program and visitors were rarely observed during this time and family members usually visited after 7 pm or on weekends, so they were not present during observation. Thus, the CNAs' competence in social interactions as an environmental stressor may exert a larger influence on BSDs in the afternoon.

Another explanation of the different results from morning to afternoon may be the circadian rhythm of behavioral symptoms. PWDs are known to exhibit BSDs with circadian rhythms, a temporal pattern of behavioral manifestation in a daily cycle. Several studies have documented a peak time in the afternoon (12pm-5pm) for the appearance or exacerbation of behavioral symptoms (Burgio, Scilley, Hardin, & Hsu, 2001; Cohen-Mansfield, 2007; McCann, Gilley, Bienas, Beckett, & Evans, 2004; Martin, Marler, Shochat, & Ancoli-Israel, 2000). Thus, the relationship between competence in social interactions and BSDs may be more obvious in late afternoon, when BSDs were more frequently observed.

In general, CNAs provided high dementia competent social interactions and low culturally competent social interactions (Table 2-2; Figure 2-2). In addition, CNAs provided higher competent social interaction behaviors in the afternoon than in the morning (Table 2-2). One explanation is that there are fewer distractions in the afternoon, less "busyness" and the milieu is calmer than in the morning. In addition, the tasks of the CNAs are less complex in the afternoon compared to CNAs in the morning. Thus, CNAs may have more opportunities to use appropriate communication skills if they have that knowledge in a less pressured environment.

Limitations of the study

Results did not reach statistical significance. One explanation is that the sample size and the number of repeated observations were small. Since the graph shows a trend in the relationship between competence in social interactions and BSDs, a larger sample size may show a significant association. The other explanation may come from the regression analysis. It assumes a linear relationship, fitting a straight line to the relationship between dependent variable and independent variable, when the relationship may not in fact be linear. As the first step of data analysis, the linear graph shows trends between variables. However, it is hard to

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generalize the results with a small sample. In addition, it does not capture the circadian rhythm of BSDs (Martin, Marler, Shochat, & Ancoli-Israel, 2000).

Another limitation is related to the aggregation of the data. Although necessary, it is not possible to capture individual differences in BSDs when using aggregated data (Garre-Olmo, Lopez-Pousa, Vilalta-Franch, de Garcia Blanco, & Vilarrasa, 2010; Mohs, Schmiedler, & Aryanm 2000; Robert et al., 2005). Thus, it is hard to determine who, when, and what types of BSDs are most problematic and what may be the best timing for any intervention. The small sample and high heterogeneity in this sample precluded findings of significance. For example (Table 2-7), two residents (IDNO 101; 107) exhibited a higher number of BSDs and both had BSDs intensity 1-3. One resident (IDNO 101), however, exhibited mostly tapping or banging behavior, while awake, while another (IDNO 103) showed a variety of BSDs, that included pacing, restlessness, repeated questioning and yelling.

In the same way, the CNAs' social interaction behaviors were also aggregated, which precludes an understanding of which specific social interaction behaviors may increase or decrease BSDs. For example, when the same CNA (IDNO 206) used low culturally competence (0.13 & 0.15) and high dementia competence (0.90 & 0.89) in the morning, the resident (IDNO 103) showed a higher number of BSDs on the 2nd day of observation (176) compared to the 3rd day (45). Although competence in social interaction behaviors was similar, some of items may influence BSDs to a greater degree, regardless of the total count of social interaction behaviors.

Recommendations

Further study of these relationships needs a larger sample in a variety of settings. This study was conducted in an ethno-specific NH, where cultural resources (i.e., language, food, activities) were available. The findings may be different in an NH, where such cultural resources

are rare. In addition, since this study did not examine nursing staff, who had the same ethnic background as the NH residents, it would be interesting to examine the occurrence of BSDs when the CNAs are from the same ethnic background as the residents. When a resident became physically or verbally aggressive, Korean nurses occasionally were observed to interrupt the interaction between the CNAs and the resident, trying to calm the resident. Some Korean-speaking nurses, who were observed, did not use culturally competent social interactions despite having the same ethnic background and language as the residents.

The social interaction coding schemas should be refined. Videotaping may be helpful because it allows repeated observation of the same videotape several times to detect possible environment factors, which can be missed by an RAs' direct observation.

In future studies, individual differences should be examined. The differences within and between individuals can be determined by visual analysis such as inter-individual/intra individual graphical trajectories of BSDs related to a change in social interaction competence. Since each resident exhibited a different type of behavioral symptom, each type of behaviors should be separated. Given that restless and vocalization were the two the most frequently observed behaviors in this study, future analysis could analyze these discrete behaviors with attention to time of day, and degree of CNAs' interaction competency.

Pattern recognition software such as Theme^{TM} (Magnusson, 2000) could be also used to detect within individual temporal patterns of behavior. This software may help determine the temporal relationship of specific behavior patterns. These patterns can then be correlated with CNA's competent and incompetent social interaction behaviors. In this way, we may be able to detect which social interactions trigger or escalate certain BSD patterns. We also may be able to understand which behavioral symptoms influence social interaction behaviors.

Conclusion

This study shows a trend toward a negative association between competence in social interactions and behavioral symptoms. In particular, CNAs' cultural and dementia competence in social interactions contributes to the decreased behavioral symptoms in late afternoon. This finding suggests the need for training for CNAs in dementia competent and culturally competent social interactions. Further studies, to facilitate the CNAs use of competent social interaction behaviors with specific attention to the time of day when these behaviors may have the maximum effect, may be beneficial to decrease BSDs and improve the quality of life of ethnic minority older adults with dementia.

Table 2-1. CNAs' demographic information (N=28)

Variables	N (%)	
Shift		
Day shift	14 (50.0%)	
Evening shift	14 (50.0%)	
Gender		
Male	3 (10.7%)	
Female	25 (89.3%)	
Ethnicity		
Hispanic	27 (96.4%)	
African American	1 (3.6%)	
Primary Language		
Spanish	27 (96.4%)	
English	1 (3.6%)	
Education		
0-8th	1 (3.6%)	
9-12th	19 (67.9%)	
Post secondary/college	6 (21.4%)	
Missing	2 (7.1%)	
Experienced language barrier?		
Not at all	8 (28.6%)	
Occasionally	18 (64.3%)	
Missing	2 (7.1%)	
	Mean (SD)	**Range**
Age	33.80 (9.63)	19 ~ 53
Length of working	30.13 (42.41) months	1 ~ 216

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Table 2-2. Proportion of CNAs' competent social interaction behaviors

	Dementia		Culture	
	AM	**PM**	**AM**	**PM**
n	44	49	44	49
Mean	0.58	0.70	0.33	0.44
Median	0.61	0.73	0.29	0.41
Range	0.07~0.90	0.40~0.93	0.03~0.86	0.05~1
SD	0.23	0.15	0.21	0.23

Table 2-3. Dementia social interaction behaviors

Behavioral codes	Number of times code used N (%)	Total number of codes N (100%)
Initial introduction (<30sec)		
No introduction	74 (79.57)	93
Introduction	19 (20.43)	
Call actual name (<30sec)		
No call name	66 (70.97)	93
Call name	27 (29.03)	
Informing		
No inform	247 (66.94)	369
Inform	122 (33.06)	
Instruct		
Step by step	208 (94.55)	220
Multiple steps	12 (5.45)	
Unnecessary touch	20	20
Words		
Simple	377 (97.92)	385
Inappropriate	8 (2.08)	
Argue	12 (100)	12
Collaborate talk	65 (100)	65
Talk about resident	21 (100)	21
Interrupt of care		
With notice (knock door)	25 (45.45)	55
No notice/permission	30 (54.55)	
Pace[a]		
Hurried	15 (16.13)	93
Gentle	78 (83.87)	
Care continuity[b]		
Continuous	83 (90.22)	92
Sporadic	9 (9.78)	
Speaking speed[c]		
Speak slowly	78 (85.71)	91
Speak fast	13 (14.29)	
Tone of voice[d]		
Kind	54 (61.36)	88
Monotonous	34 (38.64)	

Note. Pace[a], Care continuity[b], Speaking speed[c], and Tone of voice[d] was coded at the end of social interaction encounter.

Table 2-4. Korean-culture social interaction behaviors

Behavioral Codes	Number of times code used N (%)	Total number of codes N (100%)
Greeting (<30sec)		
Greeting	25 (27.78)	90
No greeting	65 (72.22)	
Name		
No initial call resident	49 (7.02)	698
Name/*Halmeonie* (Korean)	379 (54.30)	
Inappropriately call name	270 (38.68)	
Korean speech style		
Polite	91 (15.37)	592
Casual	501 (84.63)	
English	720 (100)	720
Use of unfamiliar language		
Spanish	173 (100)	173
Affectionate Touch		
Head face	7 (63.64)	11
Back/shoulder	0 (0)	
Hand	4 (36.36)	
Eye contact[a]		
Constant staring	0 (0)	91
No eye contact	44 (48.35)	
Occasional eye contact	47 (51.65)	
Proximity[b]		
Around arm length	92 (100)	92
Less than arm length	0 (0)	
Position/Eye level[c]		
Same/look up: same eye level	17 (18.68)	91
Look down	74 (81.32)	

Note. Eye contact[a], Proximity[b], Position[c] was coded at the end of social interaction encounter.

Table 2-5. Residents' demographic information (N=20)

Variables	N (%)
Gender	
Male	3 (15%)
Female	17 (85%)
Religion	
Christian	15 (75%)
Catholic	2 (10%)
Missing	3 (15%)
Marital status	
Married	4 (20%)
Widow	15 (75%)
Divorced	1 (5%)
Education	
0-8th	1 (5%)
9-12th	12 (60%)
Post secondary/college	2 (10%)
Missing	5 (25%)
Continence	
Incontinent	11 (55%)
Occasionally incontinent	7 (35%)
Continent	2 (10%)
Mobility	
No limitation (no need assist)	1 (5%)
Able to stand up with assistance	14 (70%)
Limited (need total assist to transfer)	5 (25%)
Dementia type	
Alzheimer's type	15 (75%)
Unknown type	5 (25%)
Medications	
Antipsychotics	2 (10%)
Antidepressants	11 (55%)
Cognitive enhancers	15 (75%)
Analgesics	5 (25%)
Cardiovascular meds	18 (90%)
Laxatives	9 (45%)
Supplement (e.g., Vitamin)	5 (25%)
Comorbid illness	
Hypertension	14 (70%)
Diabetes	10 (50%)
Osteoporosis	11 (55%)
Pulmonary disease	4 (20%)
Anxiety/Depression	5 (25%)

	MEAN (SD)	Range
Age	87.25 (7.23)	73 ~ 98
Length of stay	29.55 (27.24) months	3 ~ 102
MMSE[a] score (N=15)	9.33 (8.00)	0 ~ 27
N=2	Refuse	0 ~ 10 (7)
N=3	Unable to examine	11 ~ 20 (8)
		21 ~ 27 (1)

Note. [a]Measured using the Korean Mini-Mental State Examination (Kang, Na, & Hahn, 1997)

Table 2-6. Frequency of behavioral symptoms of dementia (N=20)

BSD	Intensity	Frequency	n (%)
Manual Manipulation	1	1125	1612 (39.41%)
	2	483	
	3	4	
Vocalization	1	259	1041 (25.45%)
	2	611	
	3	171	
Banging/Tapping	1	117	967 (23.64%)
	2	821	
	3	29	
Pacing/Walking	1	194	257 (6.28%)
	2	62	
	3	1	
Escaping Restraints	1	108	169 (4.13%)
	2	61	
	3	0	
Searching/Wandering	1	22	44 (1.09%)
	2	10	
	3	12	
Total		4090	4090 (100%)

Table 2-7. BSDs and proportion of competent social interaction behaviors

Case Number	IDNO Resident	IDNO CNA	Day	TOD	TotalBSD	Cul_pro	Dm_pro
1	100	201	1	1	10	0.11	0.13
2	100	202	1	2	26	0.35	0.67
3	100	201	2	1	10	0.57	0.09
4	100	202	2	2	72	0.14	0.67
5	100	201	3	1	22	0.29	0.13
6	100	203	3	2	7	0.48	0.40
7	101	201	1	1	382	0.13	0.07
8	101	202	1	2	192	0.25	0.42
9	101	201	2	1	83	0.33	0.17
10	101	202	2	2	159	0.28	0.53
11	101	201	3	1	212	0.07	0.09
12	101	203	3	2	598	0.73	0.40
13	102	201	1	1	76	0.06	0.61
14	102	202	1	2	19	0.05	0.79
15	102	201	2	1	22	0.27	0.67
16	102	202	2	2	104	0.17	0.64
17	102	201	3	1	68	0.09	0.53
18	102	203	3	2	97	0.21	0.73
19	103	204	1	1	50	0.24	0.87
20	103	205	1	2	244	0.41	0.81
21	103	206	2	1	176	0.13	0.9
22	103	205	2	2	260	0.53	0.70
23	103	206	3	1	45	0.15	0.89
24	103	207	3	2	236	0.55	0.50
25	104	208	1	1	61	0.52	0.67
26	104	209	1	2	161	0.71	0.75
27	104	208	2	1	64	0.68	0.66
28	104	209	2	2	97	0.67	0.79
29	104	208	3	1	16	0.73	0.61
30	104	202	3	2	218	0.31	0.73
31	105	201	1	1	9	0.09	0.75
32	105	211	1	2	23	0.12	0.73
33	105	212	2	1	95	0.44	0.77
34	105	202	2	2	154	0.10	0.67
35	105	212	3	1	103	0.38	0.39
36	105	202	3	2	219	0.25	0.70
37	106	206	1	1	67	0.03	0.72
38	106	205	1	2	143	0.50	0.71
39	106	206	2	1	121	0.11	0.78
40	106	205	2	2	51	0.14	0.45
41	106	204	3	1	41	0.25	0.56
42	106	205	3	2	38	0.55	0.50
43	107	201	1	1	91	0.06	0.35

44	107	202	1	2	94	0.33	0.43
45	107	201	2	1	119	0.20	0.56
46	107	203	2	2	101	0.60	0.45
47	107	203	3	2	44	0.17	0.56
48	108	212	1	1	63	0.21	0.5
49	108	213	1	2	6	0.25	0.57
50	108	212	2	1	20	0.31	0.56
51	108	207	2	2	78	0.60	0.50
52	108	212	3	1	27	0.17	0.60
53	108	213	3	2	11	0.18	0.56
54	109	214	1	2	34	0.75	0.70
55	109	214	2	2	85	0.80	0.75
56	109	214	3	2	59	0.63	0.72
57	110	215	1	1	123	0.48	0.76
58	110	216	1	2	22	0.70	0.76
59	110	217	2	1	4	0.28	0.62
60	110	218	2	2	22	0.19	0.90
61	110	215	3	1	31	0.33	0.45
62	111	221	1	1	2	0.30	0.84
63	111	219	1	2	0	0.29	0.77
64	111	221	2	1	4	0.38	0.70
65	111	219	2	2	4	0.32	0.93
66	111	223	3	2	1	0.25	0.78
67	112	222	1	1	39	0.49	0.46
68	112	219	1	2	23	0.39	0.82
69	112	222	2	1	41	0.42	0.55
70	112	219	2	2	7	0.32	0.93
71	112	222	3	1	55	0.52	0.73
72	112	223	3	2	28	0.43	0.71
73	113	221	1	1	23	0.24	0.9
74	114	224	1	1	13	0.48	0.63
75	114	225	1	2	158	1.00	0.75
76	114	224	2	1	10	0.59	0.41
77	114	202	3	2	18	0.4	0.86
78	115	226	1	1	7	0.86	0.87
79	115	227	1	2	11	0.67	0.93
80	115	227	2	2	6	0.78	0.73
81	115	226	3	1	62	0.60	0.67
82	115	227	3	2	0	0.50	0.93
83	116	227	1	2	18	0.89	0.79
84	116	227	2	2	30	0.36	0.91
85	116	227	3	2	36	0.45	0.92
86	117	228	1	1	0	0.45	0.71
87	117	229	1	2	3	0.68	0.75
88	117	230	2	1	0	0.40	0.75
89	117	229	2	2	9	0.52	0.64
90	117	230	3	1	0	0.67	0.56

91	117	229	3	2	0	0.72	0.83
92	118	201	1	1	0	0.16	0.64
93	119	223	1	1	10	0.15	0.50

Note. IDNO-resident: resident identification number

      IDNO-cna: certified-nursing assistant identification number

      Day: observation day

      TOD: observation time of day (1=am, 2=pm)

      Total BSD: total count of behavioral symptoms

      Cul_pro: proportion of culturally competent social interaction behaviors

      Dm_pro: proportion of dementia competent social interaction behaviors

Figure 2-1. Mean total number of behavioral symptoms of dementia
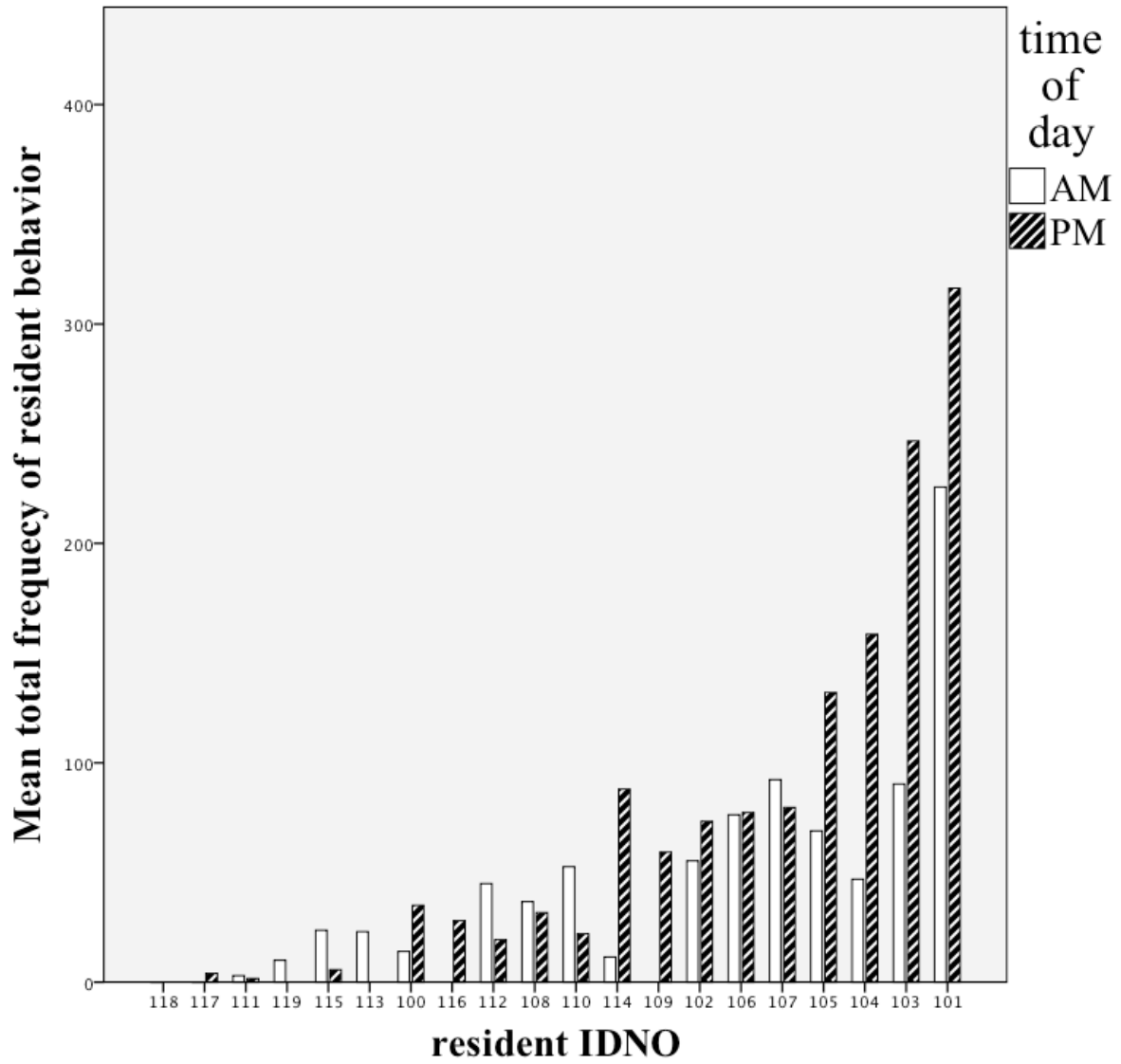
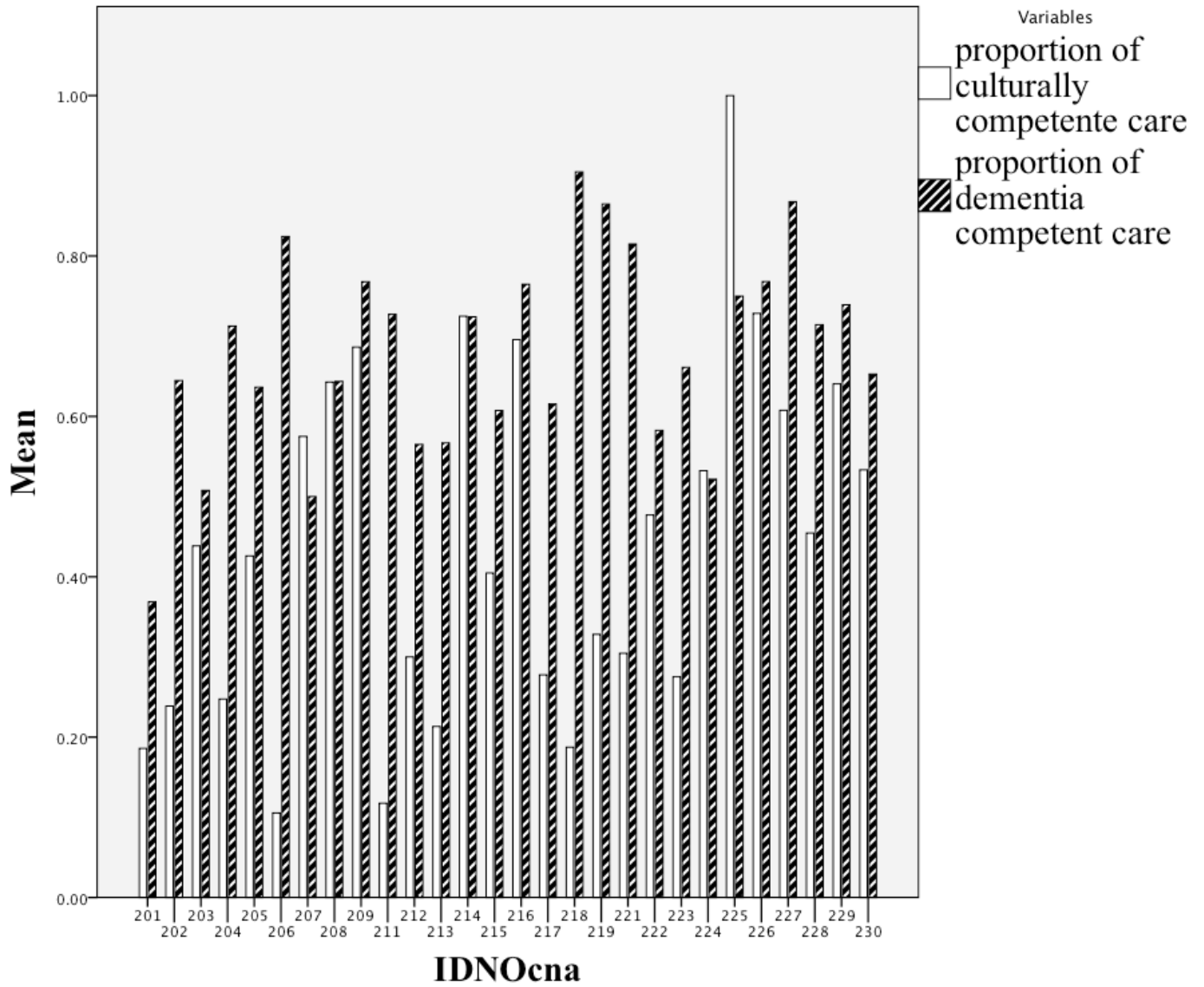Figure 2-2. Proportion of competent social interaction behaviors

Figure 2-3. Relationship between social interaction and BSD in the morning
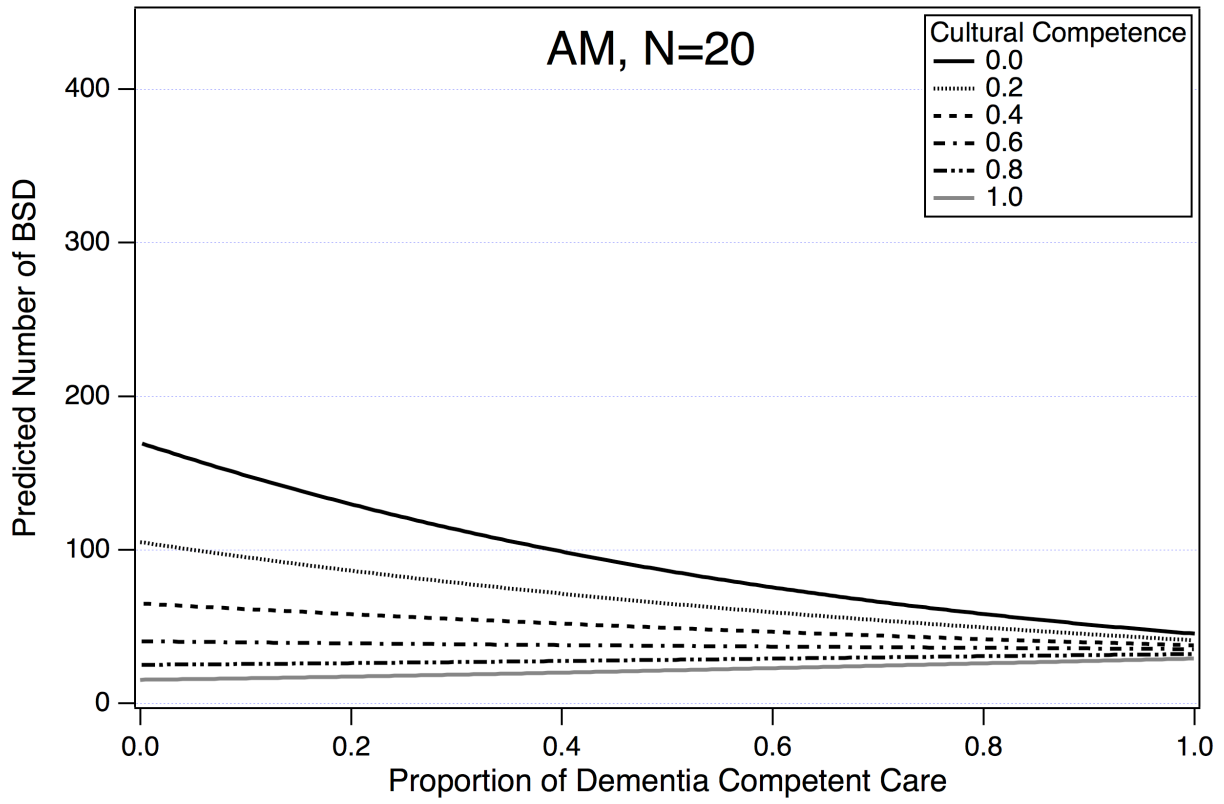
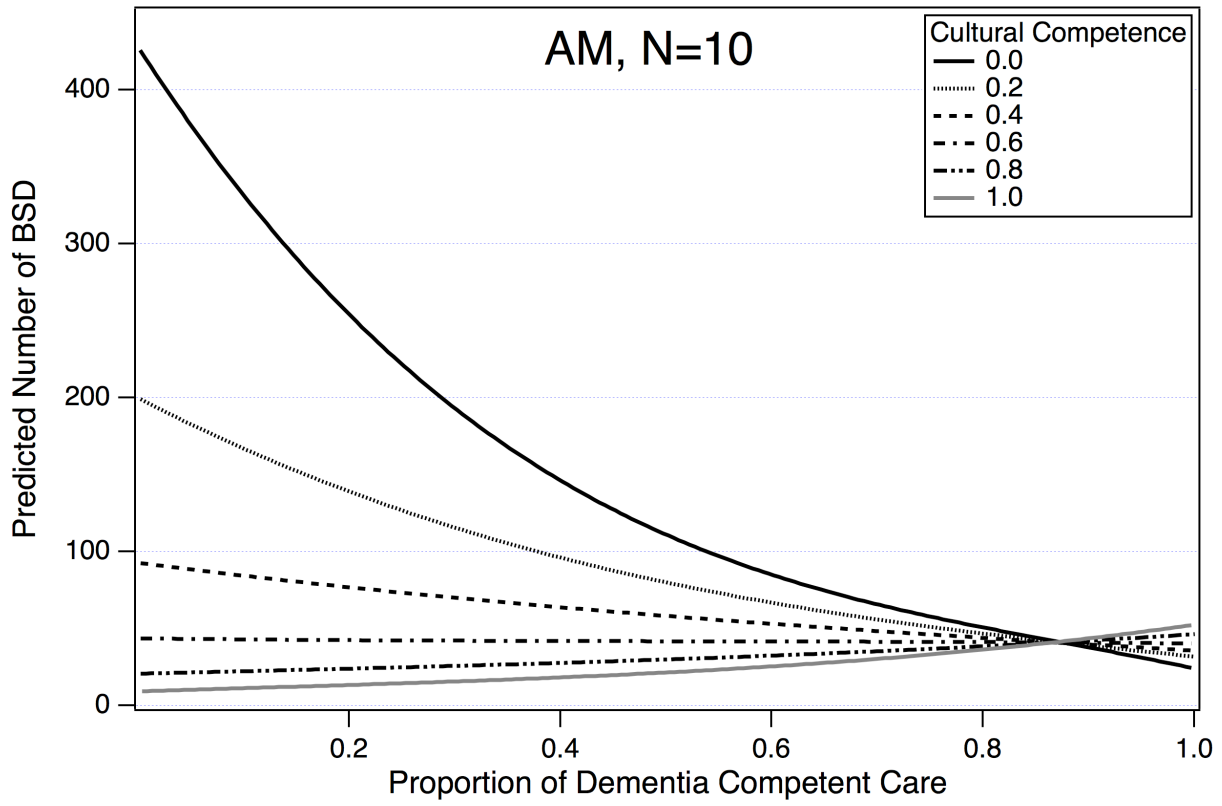Figure 2-4. Relationship between social interaction and BSD in the morning

Figure 2-5. Relationship between social interaction and BSD in the afternoon
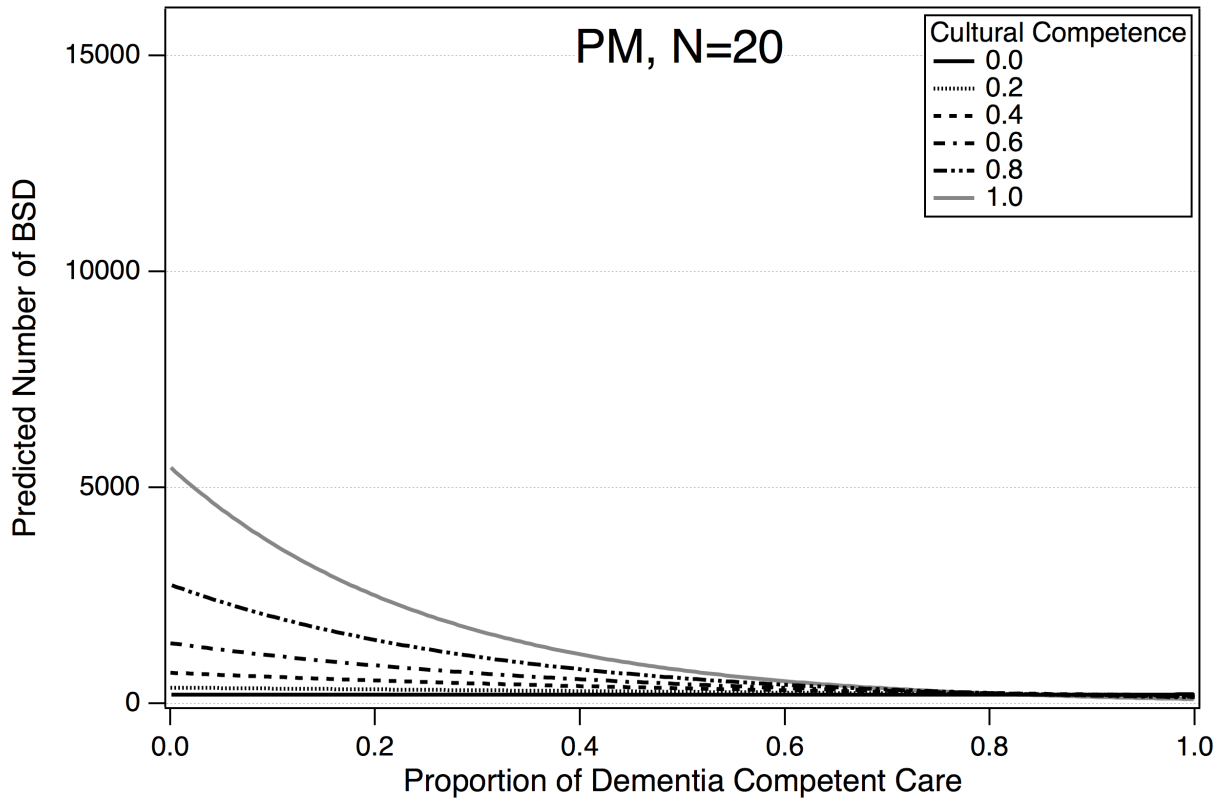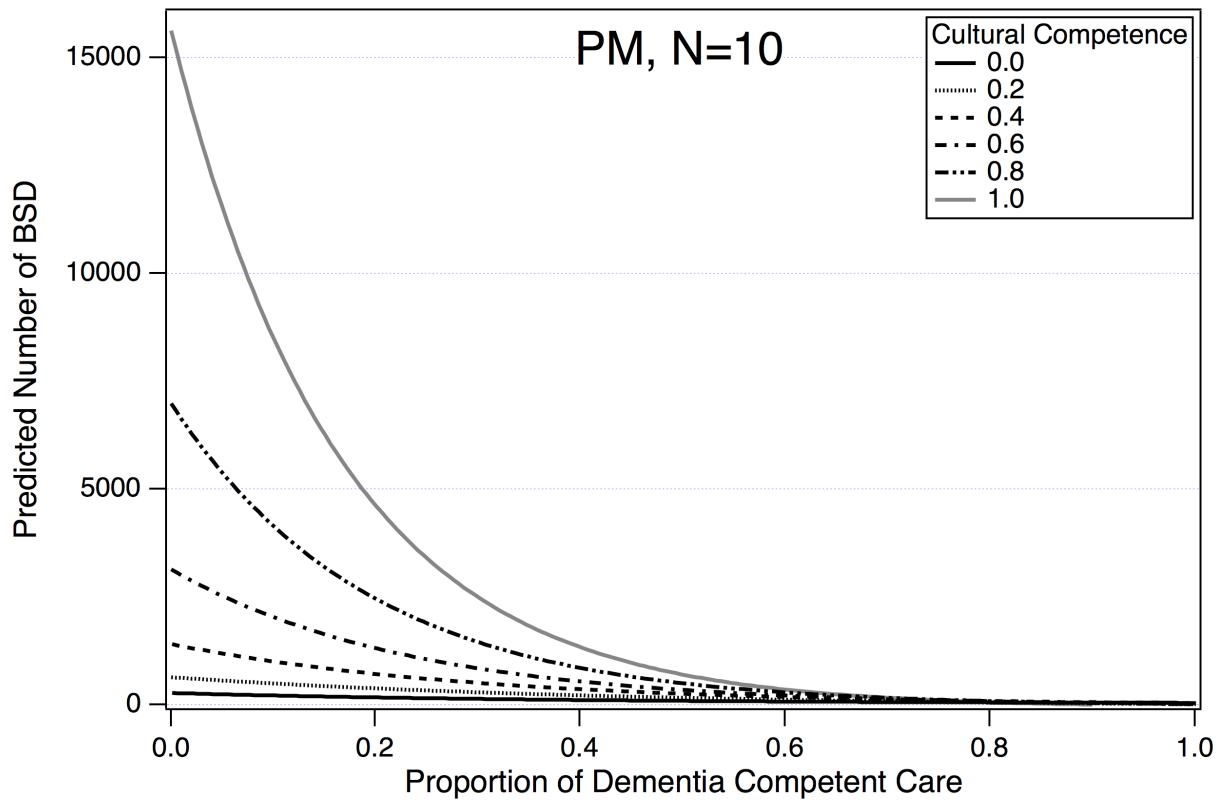
Figure 2-6. Relationship between social interaction and BSD in the afternoon

CHAPTER V. CONCLUSION

This study explored and described the influence of social interactions on BSDs in ethnic minority NH residents, specifically, the influence of non-Korean direct-care staff's dementia and cultural competence in social interactions on the BSDs of KA-NH residents. The ultimate goal was to stimulate future research for this underrepresented population.

The results supported the combined model of the PLST and the EMA. Direct-care staff's social interaction behavior, viewed as environmental stressors, influenced NH-residents' BSDs. The more direct-care staff members provided culturally and dementia competent social interactions, the less KA-NH residents exhibited BSDs, although this varied from morning to late afternoon. If direct-care staff members provide dementia or culturally appropriate social interactions, environmental stimuli may not exceed the PWD's capacity to respond appropriately. Thus, BSDs may be decreased or not elicited. This relationship was prominent in the late afternoon, as the PLST model proposes that PWDs are more vulnerable. Moreover, the relationship was more prominent in those who exhibited high intensity BSDs, those who were likely even more vulnerable to environmental stressors. This suggests that competent social interactions may be more effective at certain times of day. Moreover, the findings suggest that PWD with high intensity BSDs may respond more positively to competent dementia and cultural social interaction, that in turn, may decrease environmental press (EMA model).

Results however were not statistically significant. A variety of factors, such as a small sample size and inter-individual/intra-individual variability may have influenced the results. In addition, the findings were not consistent from the morning to the afternoon. Possible explanations are NH-residents were likely to be less tolerant of environmental stimulation in the afternoon and exhibit higher number of BSDs thus were more obvious to see the relationship

between direct-care staff's competent social interactions and BSDs. In addition, morning care included numerous and varied care activities, which may make BSDs be less amenable to dementia and cultural competent interactions.

In light of these results, future studies are needed with a larger sample size in a variety of settings. Different data analysis approaches may produce other meaningful results. Examples include inter-individual/intra individual graphical trajectories of BSDs over change in social interaction competence and the use of pattern recognition software such as Theme^{TM} to identify temporal patterns of behaviors.

In summary, direct-care staff's social interaction behaviors have an important role in eliciting, decreasing or increasing BSDs in ethnic minority NH residents. While dementia competence is critical, the data shows that when cultural competence is added, especially in the afternoon for those PWD with high intensity behavior, there is a sharp decrease in BSDs.

Therefore, training and facilitating direct-care staff use of competent social interactions in practice will help provide better services and ultimately improve the quality of life for ethnic minority older adults with dementia

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