The Effect of Caregiver Question Types On Disruptive Behavior in Dementia Patients

Cynthia I. Lofton

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THE EFFECT OF CAREGIVER QUESTION TYPES ON DISRUPTIVE BEHAVIOR IN DEMENTIA PATIENTS

by

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A Dissertation
Submitted to the Graduate Faculty

of the

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for the degree of

Doctor of Philosophy

Grand Forks, North Dakota
December
2008
This dissertation, submitted by Cynthia Lofton in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

[Signatures]

Chairperson

This dissertation meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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The Effect of Caregiver Question Types on Disruptive Behavior in Dementia Patients

Communication Sciences and Disorders

Doctor of Philosophy

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ABSTRACT

The purpose of this study was to determine if individuals in the later stages of dementia could benefit from their caregivers’ use of language components that would assist them in gaining access to their emotional memories that had been developed throughout a lifetime of experiences. Participants in the study included 10 long-term care residents with a diagnosis of moderate-to-late stage dementia, probable Alzheimer’s disease, and who were vocally disruptive. Thirty caregivers who interacted with the residents also participated in the study. The caregivers’ responses to the vocally disruptive individuals were categorized as statements or questions. The language forms of caregiver questions were categorized by question type (yes/no, open-ended, clarifications, repetitions, or multiple-choice) and content (emotional or non-emotional). Resident responses following the caregivers’ questions were categorized as no change, increase, or decrease in level of disruptive vocalizations. Additional information was gathered through demographic profiles and two questionnaires completed by the caregivers. The results of this study indicated that (1) all types of questions with emotional references were more successful in decreasing the residents’ disruptive vocalizations than questions with no emotional references and (2) yes/no questions were more effective than other types of questions in decreasing disruptive vocalizations. Future research should focus on training caregivers to increase the number of yes/no questions and emotionally referenced language to improve the individual with dementia’s ability to successfully participate in communicative interactions.
CHAPTER ONE
INTRODUCTION

Dementia denies an individual the ability to communicate their medical, physical and emotional needs. As a result, individuals with dementia may attempt communication through inappropriate behavior often involving disruptive vocalizations (i.e., repetitive questioning and shouting). In a study of clinical features characteristic of severe dementia, Boller, Verny, Hugonot-Diener and Saxton (2002) reported that inappropriate shouting (screaming episodes) is most likely to occur when a person is unable to verbally express his or her feelings, especially during a time of distress or anxiety. Disruptive vocalizations can be devastating to communication interactions and quality of life for both the individuals with dementia and those who provide their care. Caregivers are challenged to determine what the individuals with dementia are attempting to communicate through their disruptive behaviors and further, how caregivers can best increase the resident’s communicative success. The main purpose of this study was to determine if caregivers’ ability to activate emotional memories of the resident with dementia using certain types of language would decrease the incidence of disruptive vocalizations.

The National Alzheimer’s Association (2005) reports that Alzheimer’s disease is the most common form of dementia, with 50 to 60% of all dementia cases diagnosed as Dementia of the Alzheimer’s Type (DAT). According to the American Psychiatric Association DSM-IV-TR (2000), the diagnostic category of Dementia of the Alzheimer’s
Type involves memory impairment and one or more of the following: aphasia (language disturbance), apraxia (impaired ability to carry out motor activities despite intact motor function), agnosia (failure to recognize or identify objects despite intact sensory function), and disturbance in executive functioning (i.e., planning, organizing, sequencing, abstracting).

Decreased memory is the most obvious impairment for individuals with Alzheimer's disease. Memory is essential to producing informative sentences. The loss of memory in individuals with dementia results in the inability to produce appropriate words necessary for communication (Dijkstra, Bourgeois, Petrie, Burgio & Allen-Burge, 2002). The literature on clinical intervention for individuals with Alzheimer's disease recommends that communication partners use communication strategies that will compensate for memory impairments (Mahendra, 2001; Tomoeda, 2001).

In 2007, Zientz, Rackley, Chapman, Hopper, Mahendra, Kim, and Cleary published a report on therapy techniques used to enhance the communication skills of individuals with dementia. One of the therapy techniques reported by the authors and that is important to this study is the use of questions by the caregivers who are interacting with individuals with dementia. Dijkstra et al. (2002) reported that caregivers typically used a high number of questions when interacting with late-stage dementia individuals, possibly in an attempt to repair communication breakdowns. Some studies indicate that caregivers, when interacting with individuals with dementia, are often more successful when using yes/no questions as compared to when they use open-ended questions (Small & Perry, 2005; Toner, Beck & Richards, 2003). In 2001, Hopper reported that the yes/no
question format helps to simplify conversational interactions necessary for comprehension by individuals with dementia.

Another potential communication strategy is based on emotional memory. Sprenger (1999) discussed five different types of information storage processes that constitute long-term memory: semantic, episodic, automatic, procedural and emotional. Semantic (learned information – words) and episodic (linked to specific temporal and spatial context) memories are stored in the hippocampus. Procedural (learned activities) and automatic (conditioned responses) memories are stored in the cerebellum, with emotional memories (feelings related to past experiences) are stored in the amygdala. Most studies have focused primarily on the deficient explicit memory skills of semantic, episodic, and procedural memory rather than on the implicit memory skills of automatic and emotional memory (Baker, 2005). Sprenger reports that in the normal population, as past emotions are activated, the thoughts related to the emotional memories overpower the other types of memory (i.e., semantic, episodic, automatic, and procedural). Eventually, the emotional memories provide a stronger connection to the other types of memory through incorporation of any emotional significance from the individual’s past life experiences. The memories, developed from the past experiences, activate the semantic memory, providing an individual with increased ability to recall the appropriate words as they are now related to specific events of the past.

Various studies have determined that individuals with dementia retain the ability to express and comprehend emotional components of communication (Bucks & Radford, 2004; Kensinger, Anderson, Growdon & Corkin, 2004; Magai & Cohen, 1998; Magai, Cohen, Culver, Gomberg & Malatesta, 1997; Magai, Cohen & Gomberg, 2002). For
example, studies report individuals in the later stages of dementia retain an emotional awareness in that they are able to display both positive (e.g., joy) and negative (e.g., anger, contempt, disgust) facial expressions in response to various types of caregiver interactions (Magai et al., 2002). Bucks and Radford (2004) also report that individuals in the later stages of dementia display emotional processing abilities, as they are able to recognize happiness, sadness, anger, fear, and the lack of any type of emotion.

Previous research has recommended continued study of the impact of emotional stimuli for individuals with dementia (Baker, 1996; Boller et al., 2002; Finnema, Droes, Ribbe & van Tilburg, 2000; Kensinger et al., 2004; Magai et al., 2002). Specifically, investigation of language that references past experiences (emotional references) within questions following disruptive vocalizations of individuals with dementia would help determine if disruptive vocalizations decrease following the caregivers’ use of emotional references in their questions. That is, it is of interest to determine if the caregivers’ incorporation of emotional references into their questions would increase the individual with dementia’s ability to access their language to better respond to the conversational interaction. If it is true that activating emotional memories improves the individual with dementia’s ability to express their needs, this could improve their communicative interactions by decreasing their disruptive outbursts.

Thus, previous studies have found that certain types of questions result in improved communication abilities for individuals with dementia. In addition, studies cited above suggest that language with emotional references may also provide communication benefits. This study is a further exploration of these previous findings, and it attempts to accomplish two goals: (1) to replicate the previous findings regarding
the efficacy of yes/no questions, and (2) to test the notion that questions that contain emotional references promote better communicative interactions.

The study involved observations of caregiver/resident interactions at three long-term care facilities. The data were transcribed and categorized according to types of questions used by the caregiver (yes/no, multiple choice, open-ended, clarification, or repetition). Next, the content of the caregivers' questions was classified as either emotional or non-emotional. Finally, the effects of question type and content on the individual with dementia's disruptive vocalizations (whether they increased, decreased, or did not change) were analyzed. Additionally, a rating scale of the residents' behaviors and an open-ended questionnaire completed by the caregivers provided the caregivers' perceptions of the resident/caregiver communicative interactions.

In summary, the purpose of the study was twofold. One purpose was to determine if there was a decrease in the number of disruptive vocalizations produced by individuals in the late stages of Alzheimer's disease following the caregivers' use of questions with emotional references as compared to questions with no emotional references to the past. The other was to determine if there was greater success in decreasing disruptive vocalizations according to the type of question that was used by the caregiver.
CHAPTER TWO
LITERATURE REVIEW

Alzheimer’s Disease

The American Psychiatric Association (Diagnostic and Statistical Manual of Mental Disorders-IV, 2000) defines dementia as multiple cognitive deficits involving memory impairment and at least one of the following: aphasia (naming deficits), apraxia (difficulty executing motor function), agnosia (inability to recognize incoming information), or disturbance in executive functioning (problem solving skills). Additionally, the symptoms of dementia must be present outside of the diagnosis of delirium and have an effect on social and functional skills. A definition of dementia provided by Hopper, Bayles, Harris and Holland (2001) entails deficits in memory, auditory comprehension, abstract reasoning, and logical relationships affecting the individual’s ability to communicate.

Numerous authors report Alzheimer’s disease to be the most common type of dementia. Studies suggest that up to two-thirds of dementia diagnoses are of the Alzheimer’s type (Cheston & Bender, 1999). Forstl (2000) refers to Alzheimer’s disease as a “pure dementia” with difficulties in acquisition of new information and memory impairments (short-term, long-term declarative memory), resulting in word-finding, reading, and writing difficulties. These deficits increase with the progression of the disease.
Amyloid plaques and neurofibrillary tangles are prominent neurological changes noted in the brain affected by Alzheimer’s disease (Cheston & Bender, 1999) attributing to communication deficits. However, plaques and tangles are also found postmortem in individuals not diagnosed with dementia (Forstl, 2000). Therefore, along with plaques and tangles, research focuses on neurotransmitters and chromosome abnormalities characteristic of Alzheimer’s disease (Woods, 2001). Neurological and medical researchers search for risk factors and clinical identifiers of Alzheimer’s disease involving genetic factors (apolipoprotein E gene on chromosome 19), aging (e.g., increased longevity), family history (including history of Down’s syndrome), estrogen deficiency, education and occupation, and other risk factors (i.e., head injuries, alcoholism, history of heart attacks, Parkinson’s disease and hypothyroidism) (Cheston & Bender, 1999).

Types of Memory

Knowledge is introduced into short-term and working memory through visual, auditory, and kinesthetic sensory modes. After brief periods in short-term and working memory, the newly-acquired knowledge then goes into permanent long-term storage through the semantic, episodic, procedural, automatic, and emotional memory lanes for retrieval at a later time. The memory lanes used for accessing long-term storage are divided into explicit and implicit memories. The explicit memories are the semantic and episodic memories (voluntary memories involving memories of words, facts, and places). The implicit memories are procedural, automatic, and emotional memories (involuntary memories involving a compulsive response to a stimulus or a situation (Sprenger, 1999).
Semantic memory involves information relayed in the form of words, with the hippocampus responsible for storing and retrieving these words (Carter 1998; Sprenger 1999). Episodic memory is related to the locations, events, or circumstances under which the memories of the words were developed. During retrieval of information, activation of the episodic memory lane is a process of associating the learning with the "episode" that took place during the learning. The hippocampus is the gateway to the episodic memory lane, in that it stores factual information. Developing a memory of where you are when an event happens is factual information and a part of episodic memory (Sprenger, 1999). Damage to the hippocampus, related to Alzheimer’s disease, destroys the ability to access personal memories and spatial memories, as well as the capacity to use working memory to learn new information and transfer the knowledge to long-term storage. Without this ability for accessing memories or transferring new information to long-term storage, individuals with Alzheimer’s disease respond in an inappropriate manner due to the inability to compare new situations to information learned from former experiences.

Procedural memory, our "how to" memory, is an implicit form of memory in that it provides us not only with the ability to ride a bike or drive a car, but also how to execute language skills once they have become automatic (i.e., reciting the alphabet or responding to opposites such as hot/cold, black/white, salt/pepper) (Sprenger, 1999). Carter (1998) reports procedural memory to be stored in the cerebellum and putamen with deeply ingrained habits stored in the caudate nucleus.

Another category involving implicit memory is automatic memory, and similar to procedural memory, it is also located in the cerebellum. Hearing a familiar song may trigger one’s automatic memory, which can then trigger other memory lanes to open. The
alphabet, multiplication tables, and probably the ability to decode words are stored in the cerebellum, and Sprenger (1999) speculates that due to automatic memory, the ability to read, but not comprehend, is in one’s cerebellum.

The final category of implicit memory is emotional memory. Emotional memories are the strongest memories, taking precedence over semantic, episodic, procedural, and automatic memory. Emotional memories can be powerful enough to override logical thinking. As information enters the brain, the amygdala immediately assesses the emotional value and compares the information to emotional memories previously stored in long-term memory (Sprenger 1999), thereby determining if the new information has any basis for further consideration, particularly in activating the other memory lanes. The combination of these memory types (semantic, episodic, procedural, automatic and emotional) is the key to language access and the ability to produce informative sentences.

The Effect of Alzheimer’s Disease on Memory and Communication Skills

Memory loss greater than expected from normal aging is the first and most significant symptom of Alzheimer’s disease. Decreased memory skill resulting in word-finding difficulties is one of the initial characteristics of the disease. Memory and word-finding difficulties continue with progression of the disease to the point where the individual can no longer retrieve specific words, phrases, and sentences. The Global Deterioration Scale (Reisberg, 1983) is commonly used to classify the progression of the disease in seven stages. No cognitive decline is noted during Stage 1, with the individual able to function within the normal range. Stages 2 and 3 show mild cognitive decline with forgetfulness (familiar names and objects) and early states of confusion (lost when traveling, poor work performance, name and word-finding deficit). During Stage 4 there
is evidence of increased confusion, decreased knowledge of current and recent events, difficulty with travel to unfamiliar locations, handling finances, and with serial subtractions, along with an inability to complete complex tasks. The individual with Alzheimer’s disease progresses to Stage 5, when difficulty recalling relevant information (address, telephone number, names of close family members) is evident and they begin to need assistance with daily functions. Alzheimer’s disease intensifies in Stage 6 as the individual shows greater cognitive decline through forgetting the name of their spouse/caregiver, showing an unawareness of recent events, immediate surroundings, year, and season, and exhibiting delusional behavior, anxiety and agitation.

Characteristics prominent during the last stage on the Global Deterioration Scale, Stage 7, include verbal abilities being virtually lost, incontinence of urine, and not being able to independently complete their personal daily cares. Stages 6 and 7 are considered severe stages of cognitive decline with significant memory loss. Early biographical memories can be lost and the ability to produce anything other than simple words and phrases is not possible (Forstl, 2000). The individual is forced to use whatever means they have retained throughout the disease process in an attempt to communicate daily needs.

Communication attempts typical of the later stages include echolalia, palilalia, perseverations, verbal stereotypes and non-verbal utterances (Boller et al., 2002). It is at this point, during Stages 6 and 7, that family members typically can no longer provide the high level of care required and are forced to place their loved one in a long-term care facility.

Numerous authors describe the decreased communication abilities of individuals with dementia related to loss of memory skills. As noted in the Global Deterioration
Scale, the loss is gradual, with continuing decline in communication and cognitive skills as the disease progresses. Bourgeois (2002) defines the communication impairment related to dementia as not one of speech and language, but an impairment of memory with the speech processes of phonology, syntax, and semantics retained until the very end stages of dementia; however, memory impairments hinder the individual’s ability to access appropriate speech and language to convey their message. Accordingly, Bayles (2001) explains that individuals with dementia of the Alzheimer’s type have a communication problem more than a language problem, as word meaning and syntax (factual knowledge) are relatively spared throughout the course of the disease. Further, individuals with dementia of the Alzheimer’s type have difficulty comprehending lengthy complex sentences due to the difficult task of retaining the linguistic information of a message while trying to comprehend the meaning of the entire sentence (Hopper, 2001). Because memory is the key to producing informative sentences, loss of memory and language skills by individuals with dementia results in “empty speech” (Dijkstra, Bourgeois, Petrie et al., 2002). Caregivers of individuals with dementia are faced with the challenge of accessing the factual knowledge retained by the individual, even though retrieval through the memory lanes is deficient.

Maintaining and/or enhancing communication abilities in the individual with dementia require not only an understanding of the cognitive deficits experienced by each individual, but also an understanding that not all areas of memory are equally affected (Hopper, 2003). Much of the research on memory deficits characteristic of dementia and Alzheimer’s disease has focused on explicit memory, episodic and semantic memory, and declarative memory skills. Bayles (2001) reports factual knowledge to be relatively
resistant to the effects of the disease, and many investigators have documented that knowledge of word meaning and syntax are relatively spared throughout the course of the disease until into the very late stage. Such a study, by Small and Perry (2005), determined that individuals in the mild to moderate level of Alzheimer’s disease could more often respond to open-ended questions requiring recall of semantic information versus questions requiring recall of information using the episodic memory lane.

A recurring theme in articles on dementia is clinical interventions focusing on the spared cognitive abilities to compensate for the impaired areas of memory and communication (Bayles, 2001; Mahendra, 2001). Boller et al. (2002) report implicit memory (encompassing emotional memory) to be relatively spared into the later stages of the disease even though episodic memory (the ability to remember past events that happened in our lives) and semantic memory (the ability to use words to relay general knowledge) are greatly affected. Consequences of the decreased memory skills, especially episodic and semantic memory, combined with an ability to produce speech, result in discourse deficits of empty phrases, indefinite words, and repetitions (Dijkstra, Bourgeois, Burgio & Allen, 2002). Interestingly, during the late stages of the disease, individuals do have the ability to attend to pleasant stimuli for variable periods of time, repeat words, and respond appropriately to a compliment (Hopper, 2001). As reported by Forst! (2000), they are able to receive and return emotional signals long after the loss of language skills.

**Disruptive Vocalizations**

Aggressive behaviors, including disruptive vocalizations, are a common phenomenon as individuals with dementia attempts to appropriately communicate the
daily needs. A review of recent literature indicates that the description of disruptive vocalizations is relatively consistent. Cohen-Mansfield (2000) reports that a central component of problematic behavior is any behavior that is perceived to be inappropriate by the observer even though it may be considered appropriate by the individual displaying the behavior (e.g., repetition of words, shouting, hitting). Vocalizations used in a repetitive, demanding or loud manner can be classified as disruptive. These can include repetitive phrases such as: "I want to go home." "Where do I go?" "When is my husband coming to get me?" "What time is it?"

Inappropriate behaviors commonly observed in the later stages of dementia are referenced with similar terms by various authors. The more common terms include disruptive behavior (Beck, Heithoff, Baldwin, Cuffel, O'Sullivan, & Chumbler, 1997; Duffy, 2002; Magai, Cohen & Gomberg, 2002), verbal agitation (Cohen-Mansfield, 2000; Cohen-Mansfield & Libin, 2004), disruptive vocalizations (Bourgeois, 2002; Burgio, Scilley, Hardin, & Hsu, 2001; Hopper, 2001), vocally-disruptive (Hallberg, Norberg, & Eriksson, 1990), and problematic vocalizations (Toner et al., 2003).

The Cohen-Mansfield Agitation Inventory (CMAI) is a tool used by caregivers to gauge the level of disruptiveness related to 29 types of agitated behaviors. The CMAI uses a 7-point scale from "not at all" to "extremely disruptive" to rate the level of disruptiveness. A study by Shahar, Snow, Soucek, Ashton & Kunik (2004) using the CMAI, determined that the most common form of agitated expression was verbal agitation, followed by physically nonaggressive agitation, and that the least common involved physically aggressive agitation. Within the 29 types of agitation used on the CMAI, types of verbal agitation include cursing or verbal aggression, constant requests
for attention or help, repetitive sentences or questions, making strange noises, screaming, and complaining (Cohen-Mansfield & Libin, 2004). Cohen-Mansfield (2000) reports inappropriate verbalizations to be nonaggressive during the middle stages of dementia and progress to verbally-aggressive behavior by the end stages of the disease.

A study by Bourgeois (2002) reports problem behaviors such as repetitive questions or demands to be the most frequently-reported annoying behavior. Bourgeois explains that the individual has difficulty encoding information received through the sensory modes of auditory, visual and tactile stimulation and is not able to retain the concept in their short-term memory long enough to register the new information in working or long term memory. Similarly, Hopper (2001) reports that as a result of episodic memory impairment, individuals with Alzheimer's disease may repeatedly ask the same question, sometimes within seconds, as the individual with dementia is not able to access the appropriate words (word-finding difficulties) and only becomes more agitated due to the difficulty in expressing their wants and needs. Boller et al. (2002) report inappropriate shouting, used out of frustration and anger over the loss of control and the inability to express their needs, occurring in the severe dementia population as their mode of communication to interact with their environment. A study by Dijkstra, Bourgeois, Petrie et al. (2002) indicated that late-stage dementia patients used fewer words and had greater difficulty providing factual information than patients in the earlier stages of the disease.

Burgio et al. (2001) described disruptive vocalizations as screaming, cursing, complaining, negativism, moaning, paranoid verbalization, repeated requests for attention, repetitious words or sentences, singing outside of an organized activity, and
self-talk without regard to volume. Results of their study indicated that vocally-disruptive individuals averaged 15 disruptive vocalizations per hour, with an average duration of 40 seconds per disruption. There were more disruptive vocalizations during the late afternoons than any other time of the day. Hallberg et al. (1990) reported that vocally-disruptive individuals in the later stages of dementia were noisy for long periods of time and repeated words, sentences, or sounds.

Determining the causal factors of the inappropriate behaviors is difficult due to many factors related to personality, medical diagnoses, along with memory loss and communication deficits. Goleman (1995) explains that emotional explosions occur as the center of our limbic brain, the amygdala, reacts with emotions and feelings before the rest of the memory lanes are activated so that the logical thought process can begin. It appears that the combination of emotional components (e.g., frustration and anger) and the lack of word-finding abilities result in disruptive behaviors for the individual with dementia. Additionally, Cohen-Mansfield (2002) reports that various etiologies of problem behaviors, such as brain dysfunction, learning through differential reinforcement (e.g. inappropriate behavior elicits a response), over-stimulation, under-stimulation, and sensory deprivation common to dementia, add further difficulties in combating the problem behaviors.

It is important for caregivers to be aware of the communication attempts displayed by individuals with dementia through any type of vocalizations (i.e., screaming and yelling). The vocalizations may be a desperate attempt at communication using readily accessible words (Bourgeois 2002), or a form of emotionally-charged urgent response (Goleman, 1995). Also, the individual may be simply using vocalization to
quickly elicit a reaction from another individual (e.g., the caregiver) (Duffy, 2002). Accessing the spared memory lanes may be useful in assisting the individual with dementia to retrieve the appropriate words and information in order to successfully communicate their daily needs.

Caregiver Interactions with Individuals in the Late Stages of Dementia

It is the responsibility of the caregiver to guide communicative interactions, enriching the communication exchanges in order to activate the preserved memory of the individual with Alzheimer's disease. Previous research indicates that communication breakdown between the caregiver and individual with dementia is a major factor in relationship conflict, social isolation, and depression for either the caregiver or individual with dementia (Small, Gutman, Makela, & Hillhouse, 2003). Additionally, a study by Hart and Wells (1997) showed significant increase in agitation by individuals with dementia when they were given commands by their caregivers at a higher level than their comprehension ability. The Hallberg et al. (1990) study indicated that vocally-disruptive individuals require an additional 12 minutes of caregiver assistance to complete physical care activities (i.e.; bathroom duties, washing, meals) as compared to non-disruptive individuals with dementia (51 minutes vs. 39 minutes, respectively). Further, the experimenters noted that fewer attempts were made by caregivers to engage the vocally-disruptive individuals in activities.

Caregivers use various strategies in attempting to improve communicative interactions. They may attempt to finish sentences, or guess what the individual with dementia is trying to say by asking multiple questions. Caregivers may misinterpret the conversational intent by focusing on the literal message, rather than looking for the
hidden meaning. A statement such as “I want to go home” doesn’t always mean returning to their former residence (Bourgeois, 2002). The statement may relate to dying, their childhood home, or the word “home” may be completely incorrect, but the only word that the individual could access.

Numerous studies have focused on communicative interactions between caregivers and individuals with dementia, with the literature advocating the training of caregivers in communication techniques to be used in facilitating successful communicative interactions (Small et al., 2003; Zientz et al., 2007). For example, Allen-Burgio, Burgio, Bourgeois, Sims and Ninnikhoven (2001) saw an increase in positive statements being made by both caregivers and individuals with dementia following caregiver training sessions in using positive statements (i.e., “good job,” words of affection, “thank you”). Hopper (2001) reports four strategies used by caregivers that enhance communication abilities: repeated exposure, simplified conversational interactions, using declarative sentences, and using multiple choice or yes/no questions. Incorporating these four strategies into communicative interactions requires caregivers to use short sentences and repeat the message in the same format due to decreased memory skills. Caregivers should use the multiple choice or the yes/no question format rather than open-ended questions to decrease the load on the memory system. Toner et al. (2003) reported that the caregiver strategy most often and most successfully used by caregivers in response to problematic vocalizations was yes/no questions. Likewise, a study of caregiver communication strategies by Small et al. (2003) determined that the elimination of distractions, speaking in simple sentences, and employing yes/no questions were successful strategies in decreasing communication breakdowns. The authors reported
yes/no questioning to be the most successful means of preventing communication breakdowns (67% of the questions asked were answered appropriately). Additionally, Tappen et al. (1997) found caregivers of individuals in the middle and late stages of dementia were using twice as many closed-ended (yes/no, multiple choice) as open-ended questions when conversing with this population. A study by Dijkstra, Bourgeois, Petrie al. (2002) showed that nursing assistants ask more questions while interacting with individuals in the late-stage of dementia as compared to interactions with individuals in the early-stage of the disease. The authors suggest that nursing aides’ higher use of questions may be an attempt to repair communication breakdowns more often with late-stage dementia residents. Ripich, Ziol, Fritsch and Durand (1999) found that caregivers trained to use yes/no questions had a more successful outcome than those using open-ended questions.

A review of these studies indicates that caregivers, when interacting with individuals in the late-stage of dementia, use the yes/no question format extensively. However, as reported by Dijkstra, Bourgeois, Petrie et al. (2002), nursing assistants in long-term care facilities are not optimizing communicative interactions with late stage dementia residents by interacting in the most successful manner. Bucks and Radford (2004) stress the importance of decreased reliance on cognitive ability and using comprehension of emotion to increase communicative success. Considering the dementia individual’s retention of factual knowledge, but inability to access it through the deficient memory lanes, in-depth studies of communicative interactions are necessary to determine if individuals in the late stage of dementia respond differently to variations in question content through activation of the spared memory lanes (i.e., emotional memories).
Content of Communicative Interactions

Research has shown that the explicit memory skills (episodic and semantic memory) are severely impaired in the later stages of dementia, with implicit memory (including emotional memory) relatively spared (Müller et al., 2002). The ability of individuals with Alzheimer's disease to express and respond to emotional components of communication has been studied in various modalities. A study by Magai, Cohen and Gomberg (2002) reported that individuals with late-stage dementia retain an emotional awareness both in expression and in response to emotional expressions displayed by others. This emotional awareness was indicated when the authors observed an increase in the individual with dementias' positive facial expression of joy following nonverbal sensitivity training of the caregivers. Bucks and Radford (2004) noted that individuals with Alzheimer's disease were able to display emotional processing abilities in recognition of non-verbal emotional cues (i.e. happiness, sadness, anger, fear, and neutrality) and showed improved communication with comprehension of these emotions. Dolcos et al. (2005) used functional MRI in a 1-year follow-up study investigating amygdala activity (accessing emotional memories) during the retrieval process while the subjects (healthy young adults) viewed emotional and neutral pictures. The subjects recognized pictures with an emotional content more often than pictures containing neutral content. Further analysis indicated no difference in retrieval when comparing pictures expressing positive emotion as compared to pictures expressing negative emotion. Another study revealed that memory skills involving material with an emotional component are significantly better than memory of materials with neutral content (Arntz et al., 2005). Also, emotional memories provided support for retrieving additional features
Further research in the area of emotional content is being recommended. A literature review of emotion-oriented approaches (e.g., validation, reminiscence and sensory integration) by Finnema et al. (2000) reported positive effects on social behavior in correlation with using communication techniques targeting the emotional needs of the individual with dementia and recommended further research in the area. Validation (Hopper, 2001), reminiscence therapy (Head, Portnoy & Woods, 1990) and sensory integration (Burgio et al., 1996) are techniques used in accessing remote memories for improved communication and socialization skills. Theoretically, through these techniques past experiences with an emotional significance activate the amygdala, which determines if the experience is important enough to be brought forward through the emotional memory lane, which then assists in the activation of the other memory lanes (Sprenger, 1999). Small and Perry (2005) recommend further research to examine variability in the content of caregiver questions in order to train caregivers in increasing the success of the responses to the caregivers' questions. Additionally, the recently drafted American Speech-Language Hearing Association Technical Report, “The Roles of the Speech-Language Pathologists Working with Individuals with Dementia” (2005), recommends focusing on the positive emotion- abilities of the individual with dementia with the goal of increasing engagement and learning. Most studies in the areas of affect and emotional content during communicative interactions with individuals with dementia use direct observation of facial expressions following exposure to emotional components as an analysis tool for activation of emotional memories (e.g., expressions of pleasure, interest, joy, anger, disgust, contempt sadness, anxiety/fear and contentment) (Lawton, Van
Summary

Research has shown that individuals with dementia retain the ability to understand and express emotions. Therapy techniques using emotion-oriented approaches (e.g., validation, reminiscence therapy and sensory integration) are known to have positive effects on the social behavior of individuals with dementia. Research also shows that caregivers use the yes/no question form extensively when interacting with individuals in the late stages of dementia because it seems to facilitate more effective communication. Thus, it appears that combining the yes/no question form with language that activates the retained emotional skills of the individual with dementia may result in better caregiver communications, manifesting itself as a significant decrease in disruptive vocalizations.
CHAPTER III

METHOD

Participants

Individuals with Alzheimer’s disease residing in long-term care facilities and their caregivers served as participants in this study. Ten residents with a diagnosis of dementia and displaying vocally-disruptive behaviors, along with their caregivers, were recruited from three different facilities within the Minneapolis, St. Paul, and St. Cloud areas of Minnesota. Long-term care facility administrative staff members (i.e., administrators, directors of nursing, and dementia unit coordinators) were provided with a description of the research study and the selection criteria. Facility personnel identified residents with a diagnosis of dementia who displayed vocally-disruptive behaviors and contacted the residents’ legally authorized representatives for permission to enroll these residents in the study. Upon approval, the principal investigator contacted the residents’ legally authorized representatives to describe the research study and obtained informed consents.

The residents who participated in the study were at least 55 years of age with a life expectancy of greater than 6 months (i.e., residents could not participate while in a hospice program). The Diagnostic and Statistical Manual of Mental Disorders (2000) was used as a guideline for a clinical diagnosis of dementia along with a physician’s report (review of medical records) indicating probable Alzheimer’s disease. The principal investigator administered the Mini Mental State Exam (MMSE) (Folstein, Folstein, & Fanjiang, 2001) and the Global Deterioration Scale (Reisberg, Ferri, de Leon, & Crook,
1983, Appendix H) to the ten residents. The scores showed a classification of moderate-to-late stage dementia for all of the residents. Additionally, the principal investigator verified the classification of the residents who had been identified by the long-term care staff as vocally-disruptive. Cohen-Mansfield’s (2000) division of problem behaviors of either verbally nonaggressive (complaining, negativism, repetitive sentences or questions, and constant unwarranted requests for attention or help) or verbally aggressive (cursing and verbal aggression, making strange noises, verbal sexual advances, and screaming) were used as guidelines for identification of residents who were appropriate for the study. Residents identified as vocally-disruptive due to physical pain were excluded from the study. The residents must have resided in the facility for more than three months. This restriction was applied to decrease the probability of disruptive behaviors due to new and unfamiliar surroundings. All ten of the residents were Caucasian; nine were females and one was male. They were between the ages of 81 and 97 years (M = 89, SD = 5.6).

Thirty long-term care facility caregivers (e.g., nurses, nursing assistants and recreational therapists) who interacted with the residents were also recruited for the study, thus completing the communication dyads. The caregivers must have worked with the residents for at least three months prior to the study to ensure familiarity with the residents.

Instrumentation

Data were collected through audio recordings and direct observation of the resident/caregiver interactions by the principal investigator. A rating scale of the residents’ disruptive behaviors, an open-ended questionnaire regarding the caregivers’
perceptions of the communicative interactions, and a demographic profile of the
 caregivers were used to collect data regarding the caregivers’ and their perceptions.

A portable audio recorder and a microphone, (RadioShack CTR-122, serial #1A-1129 and RadioShack Business Microphone 33-3041, serial #33-3041) were used to
record the resident/caregiver verbal interactions. For further understanding of the audio-
recorded interactions, the principal investigator used hand-written notes to describe non-
verbal aspects of communicative intent (e.g., caregiver tone of voice, physical contact)
and any relevant environmental influences that clarified communicative intentions (e.g.,
pointing out the window, displaying coffee cup). Additionally, information such as a
description of the resident’s behavior, location of the interaction (e.g. resident’s room,
community room), and the activity of the resident at the time of the disruption were also
noted.

The Resident Behavior Rating Scale was completed by the caregivers following
the one-hour observed sessions. It consisted of five questions and required approximately
5 minutes to complete (see Appendix D). A 10-point rating scale was used (rating of 1 =
difficult to 10 = same as other residents) to compare working with the vocally-disruptive
resident and other individuals with dementia. The caregivers rated their perceptions of
any changes in the disruptive vocalizations, the time required by the resident,
manageability of the resident, and the enjoyment of the interaction with the resident.

After all of the observations had been completed within a facility, the caregivers
were asked to spend 15 to 30 minutes completing the Open-ended Questionnaire. General
questions pertaining to the communicative interactions of the individual with dementia
and the caregiver were used to guide the caregivers in providing their point of view on
interacting with vocally-disruptive residents (see Appendix E). Question content was devised following the format of Cohen-Mansfield & Werner (1997) typology of vocalizations. The questions focused on the type of disruptions used by the residents, the caregivers’ opinion as to what caused the residents to be vocally-disruptive, the types of questions used by the caregivers following a vocally-disruptive incident (i.e., types of words that were more successful) and the types of responses from the residents that were anticipated by the caregivers following the interactions. The questionnaire was a source of information as to how the caregivers perceived their own communicative interaction skills, their knowledge base of what emotional triggers they commonly use, and their expectations of how the vocally-disruptive residents would respond to them. The open-ended format of the questions required the caregivers to formulate their own responses.

Demographic profiles completed by the caregivers were the last source of data (see Appendix B). Information included age, gender, ethnicity, education, employment status, years of experience in the present position and in the setting, along with the amount of training that the caregivers had in caring for individuals with dementia.

Procedure

This study took place in three long-term care facilities in locations where the individuals with dementia and their caregivers typically spent their time (i.e., common living areas or the resident’s room). The caregivers were aware that the principal investigator was a speech-language pathologist serving the adult population and would be conducting the observations and administering the Resident Behavior Rating Scales and the Open-ended Questionnaires. Establishing rapport with the participants in the study was critical to the qualitative components of the study (Patten, 2002). Familiarity with the
principal investigator helped the caregivers feel comfortable and non-threatened during the observations and while completing the questionnaires. The caregivers were informed that the communicative interactions between themselves and the residents were being observed. As stated on the informed consent forms, both the residents' legal representatives and the caregivers were aware that the purpose of the study was to determine if the caregivers' style of interaction with the residents affected the incidence of disruptive vocalizations and feelings of communicative success. Additionally, the caregivers were informed that they would be completing two questionnaires designed to determine their impression of the success or failure of the interactions during the observed sessions. Minimal information was provided to the caregivers about the fact that the specific focus of the study was the form of questions and emotional content of the caregiver language. This was done to decrease the probability of the caregivers attempting to alter their typical style of interacting with the residents.

Observational Data

Each of the ten long-term care residents and their caregivers were observed during two separate one-hour audio-recorded sessions. According to previous studies (e.g., Burgio et al., 2001), typical residents with dementia who are vocally-disruptive would produce an average of 15 disruptive vocalizations per hour. The observation schedule would therefore result in approximately 300 samples of communicative interactions (i.e., 10 residents x 2 hours of observation x 15 disruptive episodes = 300 samples). An audio recorder and microphone were placed in a small handmade black pouch that was usually secured to the resident's wheelchair, with the purpose of focusing only on the interactions between the resident who was participating in the study and the resident's caregivers. In
instances when a resident was not using a wheelchair, the audio recorder and microphone were placed on a clipboard and carried by the principal investigator so that they would remain within close proximity of the resident/caregiver communication dyad. Wireless microphones have been used in other studies. For example, Small & Perry (2005) used wireless microphones on both the individual with dementia and the caregiver. However, in that study, individual caregivers (spouses) were caring for a single individual, rather than multiple long-term care staff caring for multiple individuals (i.e., residents). It was important in this study that the audio-recorded data were only from the residents and caregivers who were participating in the study and not from the caregiver interactions with other residents in the facility.

To increase accuracy of the data, the principal investigator noted additional information during the sessions (e.g., non-verbal communicative components and environmental circumstances related to the interaction). To increase the validity of the data, the residents were each observed during two one-hour sessions. These observations were scheduled on different days of the week and over different time periods. For example, the first observation of one of the residents was on a Friday (3:45 to 4:45pm) prior to the evening meal with the second observation on a Tuesday (6:15 to 7:15pm) following the evening meal. This type of schedule was used in an attempt to improve the validity of the data by taking into account the effects of environment on resident behavior. The residents' behaviors may have been affected by the presence or absence of natural lighting (daytime vs. evening), the onset of evening (residents may have experienced memories of going home after a day at work or the need to plan for the evening meal), environmental factors (sunny vs. cloudy days), types of activities of daily
living that are available for resident participation (playing Bingo vs. watching an old movie), and differences in the interactive skills of the caregivers.

*Resident Behavior Rating Scale*

The caregivers rated the residents' disruptiveness at the end of each one-hour audio-recorded session using a 10-point rating scale. The rating scale provided the caregiver's point of view on how disruptive the resident was prior to and following the interactions, how much time was required to care for the resident participating in the study as compared to other residents, how easy or difficult was the resident to manage, and how much the caregiver enjoyed interacting with the vocally-disruptive resident (based on Beck et al., 1997). The purpose of the information collected from the rating scales was, first to determine if there were any significant differences between the caregivers' perceptions of working with residents who were vocally-disruptive as compared to working with other residents. Second, the caregivers' perceptions of working with residents who were vocally-disruptive were compared to data from the observed sessions.

The rating scales were completed once at the end of each one-hour observation period rather than after each caregiver/resident interaction. This was to avoid the risk of drawing extra attention to the study, causing any disruptions in the care-giving procedure, and to prevent the caregivers from simply not interacting with a resident to avoid completing the rating scale if it would have been required multiple times during the one-hour sessions.
Open-ended Questionnaire

The caregivers provided further information on their communicative interactions with the residents who participated in the study by providing written answers to six open-ended questions. This is an important component of qualitative research as it provides additional information necessary for understanding the observed interaction (Doehring, 2002). The purpose of the information collected from the questionnaires was to evaluate the caregivers' knowledge of working with individuals with dementia who were vocally-disruptive. The questionnaires were completed after all of the audio-recorded sessions had been completed within a facility so not to bias the caregivers' behavior regarding the form and content of the questions that they used while interacting with the residents.

Caregiver Demographics

Twenty-eight of the thirty caregivers who participated in the study completed demographic profiles. The purpose of the data was to determine if there were any differences in the success of resident/caregiver interactions as a function of age, gender, ethnicity, education, employment status, experience working in the long-term care setting, or the amount of training that the caregivers had received in caring for individuals with dementia.

Data Analysis

Observational Data

The audio-recorded communicative interactions of the residents and their caregivers were transcribed for analysis. The caregivers' utterances (independent variable) were categorized according to language form and content. The residents' utterances were categorized according to the type of verbal behavior that followed the
interactions with their caregivers (dependent variable). The aim was to determine whether there was significant difference in the success rate in decreasing the disruptive vocalizations of the residents as a function of the type and content of the questions used by the caregivers.

As stated, the independent variable was question type and content. To analyze the language form, the caregivers' utterances were categorized as either statements or questions. Over 1400 caregiver utterances were recorded. Of these, 537 were questions, the focus of the study. The questions were categorized as yes/no, multiple choice, open-ended, clarification, or repetition. The multiple-choice questions were discarded due to low incidence (there were only 3), and the repetitions were removed, as they were simply duplications. Next, the caregivers' questions were classified as containing references to emotional memories as compared to no references to emotional memories. Questions were classified as emotional if they contained language that might theoretically access emotional memories. This included questions such as “Did your daughter, Amy, visit you today?” or “Would you like to watch the Lawrence Welk show on TV tonight?” Questions were classified as non-emotional if they did not contain references to persons, events, topics, or items that would evoke emotional memories (i.e., “Did you have any visitors today?”). The investigator’s notes were used to determine if there were any non-verbal communicative actions or environmental circumstances that augmented the linguistic portion of the interaction (e.g., caregiver’s tone of voice, pointing at a familiar picture, holding a cup of coffee). Table 1 summarizes the classification system.

30
Table 1. Classifications of the Form (Emotional and Non-emotional) and Content (Type of Questions) of the Caregivers’ Questions.

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Question Content</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emotional</td>
</tr>
<tr>
<td></td>
<td>Yes/no</td>
</tr>
<tr>
<td></td>
<td>Open-ended</td>
</tr>
<tr>
<td></td>
<td>Clarification</td>
</tr>
<tr>
<td></td>
<td>Repetition</td>
</tr>
<tr>
<td></td>
<td>Multiple-choice</td>
</tr>
</tbody>
</table>

The transcribed data were analyzed to determine if there were changes in the residents’ disruptive vocalizations following interactions with the caregivers. The residents’ verbalizations, before and after caregiver interactions, were compared and assigned to one of three categories. The interactions were classified as resulting in decreased disruptions if the residents were calm and interacted appropriately following interactions with the caregivers (e.g., caregiver to crying resident: “You have your dancing shoes?” with the resident responding: “Got them on!”). For the second category, the interactions were classified as resulting in no change in disruptions if the residents continued to use the same disruptive vocalizations following the interactions with the caregivers (e.g., caregiver to resident who is refusing a sandwich “Do you want some yogurt?” and the resident responds repetitively, “Will you help me?”). For the third category, the interactions were classified as resulting in an increase in disruptive vocalizations if the residents increased the volume of their response or if the residents
showed signs of increased agitation. Only five questions (1%) resulted in an increase in disruptive vocalizations and thus, were discarded from the study. The dependent variable was the residents’ vocalizations. Chi Square analyses were used to determine if there was an effect on the disruptive vocalizations of the residents as a result of the language form and content of the caregivers’ questions. Spearman’s correlations were used to determine if there were any relationships between the caregivers’ success in decreasing disruptive vocalizations and the caregivers’ demographic variables.

The original intention was to have another individual perform analysis on 20% of the resident/caregiver interactions to improve the reliability of the study. The results would have been compared to the investigator’s classifications of the caregivers’ questions and the residents’ disruptive behaviors. This proved to be impractical for several reasons. First, it would have been necessary for the second individual to listen to the audio-recordings for verbal cues such as volume and pitch of both the caregivers and the residents (i.e., determining the difference between a statement and a question and judging changes in the residents’ disruptions). Therefore, the audio-recording needed to be reviewed within a reasonable time frame following the observed sessions. Within each facility, the sessions took place in an area where approximately ten residents resided. Identification of the utterances of the residents and caregivers who were participating in the study as compared to the utterances of other residents or a caregiver interacting with other residents was initially difficult and became more difficult as time lapsed and other sessions were completed. It was necessary for the investigator to transcribe and classify the resident/caregiver interactions within several days of the session. Second, non-verbal components such as facial expression and contextual cues would not be available to the
second researcher. Additionally, in order to incorporate non-verbal components, it would be necessary for the second individual to have background information on each of the residents (i.e., previous employment, family dynamics, favorite foods and activities).

*Resident Behavior Rating Scales*

The first two questions of this rating scale addressed the caregivers’ perceptions of the residents’ level of disruptiveness. The caregivers used ratings, between 1 = out of control and 10 = stopped vocalizations, to assess the residents’ level of disruptiveness prior to and following the interactions that took place during a one-hour sessions. These data were used for comparisons of the caregivers’ perceptions of change and the actual change in disruptive vocalizations according to the audio-recorded data from the observed sessions. The other questions addressed the caregivers’ ratings of the time required by the resident (1 = excessive to 10 = same as other residents), manageability of the resident (1 = not able to manage to 10 = no difficulty in management), and enjoyment of the communicative interactions with the resident (1 = absolutely none to 10 = same as other residents in the unit). The caregivers’ responses to the questions were analyzed to determine if the caregivers perceived any differences in working with the residents who were vocally-disruptive as compared to working with other residents with a diagnosis of dementia.

*Open-ended Questionnaire*

The caregivers’ responses to the open-ended questionnaire were analyzed for patterns in the caregivers’ knowledge of disruptive vocalizations, the reason that the individuals with dementia were using the disruptions, the type of responses that the caregivers believed to be successful (e.g., special words, sentences, or actions), and
finally, any expectations or ideas of how the residents would respond to the caregivers’ attempts to communicate with the residents following episodes of disruptive behaviors. The data collected from this questionnaire were compared to the researcher’s analytic interpretation of the resident/caregiver observed interactions to improve the validity of the study and to develop the format for future studies in the area of techniques to improve the communicative interactive skills of caregivers.

Demographic Profiles

Demographic information of the ten residents was obtained from medical chart reviews. Information included the resident’s age, gender, ethnicity, medical diagnosis (including types of disruptive behaviors), current medications, and length of stay in the facility (must have been more than 3 months).

Twenty-eight of the thirty caregivers provided demographic information which included age, gender, ethnicity, education, employment status, years of experience, and the amount of training they had received in caring for individuals with dementia. This information was analyzed for patterns in style and success of communicative interactions across the demographic categories.
CHAPTER FOUR

RESULTS

Introduction

The results of the study will be divided into five sections: (1) participants in the study, (2) types of questions used by caregivers, (3) content of the caregivers' questions (emotional references vs. no emotional references), (4) changes in the residents' disruptive vocalizations as a function of the caregivers' language, and (5) caregiver questionnaires: reports of working with individuals with dementia following disruptive vocalizations.

Participants in the Study

Table 2. Numbers of Residents and Caregivers Participating in the Study and Hours of Observation.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Residents</th>
<th>Caregivers</th>
<th>Hours of observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>4</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>30</td>
<td>19</td>
</tr>
</tbody>
</table>

Table 2 shows the number of residents of the long-term care facilities, caregivers, and hours of observation in each facility along with totals for each. Three residents in each of two facilities participated in the study, and four residents from a third facility participated.
in the study. A total of 12 residents were recruited for the study, but data were not used from observations of two residents, as they were either not disruptive during either of the observed sessions, or no caregivers interacted with them when they were disruptive. Additionally, one resident did not display any disruptive vocalizations or interactions with the caregivers during one of the audio-recorded sessions. Therefore, data analysis included nine residents who were observed for two 1-hour audio-recorded sessions and 1 hour of observation for one resident, resulting in a total of 19 hours of observation.

Resident Characteristics

Medical chart reviews provided demographic information on the residents (See Appendix A). All ten of the residents who participated in the study were Caucasian, and nine were females and one was male. The 10 residents ranged between the ages of 81 and 97 years ($M = 89, \text{ } SD = 5.6$). All of the residents had a diagnosis of dementia. Medical histories of 6 of the residents reported probable Alzheimer’s disease, and the remaining 4 reported Alzheimer type characteristics as defined by the DSM-IV (1994) including behavioral disturbances, depression, confusion, and brain syndrome. The MMSE (Mini-Mental State Examination) (Folstein et al., 2001), used to identify cognitive ability (orientation, recall for words, attention, language and praxis), was administered to each resident following completion of their observed sessions. The scores on the MMSE ranged from 4 to 14 out of a possible score of 30 ($M = 9.2, \text{ } SD = 3.3$; see Appendix A). One resident had a score of 14 and three of the residents had scores of 12, which are classified on the MMSE as having moderate cognitive impairments. The scores of 6 residents ranged between 4 and 10 and were classified as a severe cognitive impairment. All residents were classified at Level 6 on the GDS (Global Deterioration Scale,
Reisberg, 1983). At this level, the individual is considered to have a severe cognitive decline and is classified as having Moderately Severe Dementia. This was evident as the residents in this study were unaware of recent events and temporal information (e.g., year, season), required assistance with activities of daily living, and experienced difficulties with incontinence. Retained cognitive skills at Level 6, which were evident in these residents, included knowledge of their past lives, ability to travel to familiar locations (e.g., move from the facility dining room to their room), and the ability to recall their own name and distinguish familiar from unfamiliar individuals in their environment. According to Reisberg (1983), at this level personality and emotional changes occur including delusions, anxiety, agitation, and violent behavior. The types of verbally disruptive behaviors reported in the residents’ medical histories included repetitive questioning (eight residents) and verbal abuse (two residents).

Caregiver Demographic Information

Caregiver demographics included in the study were age, gender, ethnicity, education level, employment status, years of experience, and amount of training in caring for individuals with dementia (See Appendix B for Questionnaire).
Figure 1 summarizes the ages of the caregivers and their employment status, which included Licensed Practical Nurses (LPN), Nursing Assistants (NA), and Other (Unit Coordinator, Therapeutic Recreation and Housekeeping). Two of the 30 caregivers were not available to provide this information. The greatest number of caregivers (12) was between the ranges of 16-25 years (43%). Ten caregivers within this age range were Nursing Assistants and two were Therapeutic Recreational Assistants.

The next highest number of caregivers (8) was in the age range of 26-35 years (27%). Employment status of the caregivers within this age range included two LPNs, four Nursing Assistants, one Therapeutic Recreational Assistant and one staff member in housekeeping (all long-term care staff are expected to interact with the residents).
Only one caregiver, an LPN, was between the ages of 36 and 45 years. A Dementia Unit Coordinator, two LPNs, and two Nursing Assistants were between the ages of 46 and 55 years. Two LPNs were between the ages of 56 and 65 years and no caregivers were 66 years or older.

Twenty-three females and 5 males completed the demographic profiles. Twenty-four caregivers identified themselves as Caucasian, two caregivers identified their ethnicity as African American, and two caregivers identified their ethnicity as “other.” No caregivers identified themselves as Latino/Hispanic, Native American, or Asian.

Figure 2. The Number of Caregivers at Each Level of Education and Employment Status.

Figure 2 shows that the level of education for 71% of the caregivers was some college but not completing a bachelor’s degree. The types of education in this category included Associate of Arts/Science, Therapeutic Recreational Assistant, and Licensed
Practical Nursing degrees. The seven Licensed Practical Nurses in the study were in this group in addition to ten of the Nursing Assistants, two Therapeutic Recreational Assistants, and a Dementia Unit Coordinator. Four caregivers had bachelor’s degrees, with three of them working as Nursing Assistants. The additional caregiver with a bachelor’s degree (Therapeutic Recreation) worked as a coordinator of therapeutic activities in the dementia unit. The category of high school consisted of three Nursing Assistants and a caregiver who worked in housekeeping.

Figure 3. The Years of Experience of the Caregivers.
The amount of caregiver experience in their present position ranged from months to 36 years ($M = 5.7, SD = 7.7$). As shown in Figure 3, the greatest number of caregivers (20) had less than four years of experience in their present position (see Appendix C). A Dementia Unit Coordinator had worked in the position for 5.5 years. Four caregivers had worked for eight years, one Nursing Assistant had worked for 10 years, and two LPNs had worked in their present positions for 26 and 36 years respectively.

![Graph showing the number of caregivers at each level of training.](image)

Figure 4. The Number of Caregivers at Each Level of Training.

The final demographic question asked the caregivers the amount of training they had received in working with individuals with dementia. The responses followed some general lines of division and were divided into three categories: at least 6 hours,
approximately 3 hours, and little or no training in dementia care. As shown in Figure 4, the greatest number of caregivers (12) was in the middle category (approximately 3 hours of training). Eight caregivers were assigned to the category of extensive training (at least 6 hours) and the other eight caregivers were assigned to the lowest category (little or no training).

Types of Questions Used by the Caregivers

The ten residents interacted with 30 caregivers during 19 hours of audio-recorded sessions. Since multiple caregivers are assigned to work with a group of residents, it was possible for a caregiver to interact with more than one of the residents who participated in the study. Thus, conversational data were collected more than once for 12 of the 30 caregivers. Eight caregivers interacted with a resident during two sessions, one caregiver interacted during three sessions, two caregivers during four sessions, and one caregiver interacted with a resident during five of the sessions. The remaining 18 of the 30 caregivers interacted with a resident during one session. Within the 19 hours of observation, these communicative interactions resulted in the 30 caregivers using 879 statements and 570 questions. Of the 570 questions, 349 were of the yes/no format. Previous studies have shown that the use of questions and more specifically yes/no questions, is a communication strategy used by caregivers in response to problematic vocalizations and is the most successful at preventing communication breakdowns when interacting with individuals with dementia (Small et al.; 2003 & Toner et al., 2003). Thus, the questions and more specifically the yes/no questions were the focus of this study.
Table 3. Types, Numbers, and Examples of Questions Used by the Caregivers.

<table>
<thead>
<tr>
<th>Question type</th>
<th>Number of questions</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/no</td>
<td>349</td>
<td>Do you want some applesauce?</td>
</tr>
<tr>
<td>Open-ended</td>
<td>133</td>
<td>What do you want to eat?</td>
</tr>
<tr>
<td>Clarification</td>
<td>60</td>
<td>Are you done? – Are you done eating?</td>
</tr>
<tr>
<td>Repetition*</td>
<td>25</td>
<td>Are you done? – Are you done?</td>
</tr>
<tr>
<td>Multiple Choice*</td>
<td>3</td>
<td>Would you like applesauce or vanilla pudding?</td>
</tr>
<tr>
<td>Total</td>
<td>570</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The 25 repetitions and 3 multiple choice questions have been excluded from the study as noted in the text.

Figure 5. The Numbers of the Five Types of Questions Used by the Caregivers.
The 570 questions were categorized as yes/no, multiple choice, open-ended, clarification or repetition. Table 3 and Figure 5 show the number of times that each type of question was used. Table 3 also provides an example of each type of question used by the caregivers. A question was categorized as a yes/no question if it only required the resident to agree or disagree with the language content (i.e., yes or no). A question was categorized as a multiple-choice question if it provided two or more choices from which the resident could choose a response. The open-ended questions required the resident to formulate responses of their own. A question was categorized as a clarification if the caregiver revised a previous question for better understanding. Twenty-five questions were determined to be exact repetitions of the previous question and excluded from the study, as their language content had already been analyzed with the first production. The three multiple choice questions were removed from the study due to their low incidence, decreasing the total number of questions to 542.

Content of the Caregiver’s Questions
(Emotional References vs. No Emotional References)

As indicated by previous studies (Arntz et al., 2005; Bucks & Radford, 2004; Dolcos et al., 2005; Kensinger et al., 2004), individuals with dementia are able to access emotional memories. Therefore, another purpose of this study was to determine if the content of the question used by the caregiver would reduce disruptive vocalizations by triggering emotional memories in the individual with dementia. More specifically, the study focused on caregivers’ use of the emotional references during their communicative interactions with the residents who participated in the study.

The caregivers’ questions (yes/no, open-ended, and clarification) were classified as emotional or non-emotional. A question was classified as emotional if it contained
language that would access the emotional memories. Specifically, consideration was
given to whether the caregiver’s communicative interactions activated any feelings
related to past experiences of the resident. A question was classified as non-emotional if
the content was neutral with no intention of accessing emotional memories.

Table 4. Examples of Yes/no Questions with Emotional (E) vs. Non-emotional (NE)
Reference.

<table>
<thead>
<tr>
<th>Emotional (E)</th>
<th>Non-Emotional (NE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you stay and have supper with me?</td>
<td>Do you want something to eat?</td>
</tr>
<tr>
<td>Do you want to dance?</td>
<td>Would you wait here for me?</td>
</tr>
<tr>
<td>Can you drink this apple juice?</td>
<td>Do you want something to drink?</td>
</tr>
<tr>
<td>How about some pudding?</td>
<td>Do you want more?</td>
</tr>
<tr>
<td>It really looks summery, doesn’t it?</td>
<td>Are you hot?</td>
</tr>
<tr>
<td>Do you have a favorite hat?</td>
<td>Do you want something on your head?</td>
</tr>
<tr>
<td>Do you want to watch “The Price is Right”?</td>
<td>Do you want to watch TV?</td>
</tr>
</tbody>
</table>

Table 4 provides examples of questions containing language that could potentially
activate emotional memories for the individual with dementia and questions that do not
contain any emotional references (non-emotional). Non-verbal communication displayed
by the caregivers was also considered when categorizing the questions as emotional vs.
non-emotional. “Do you want something to eat?” typically was not categorized as having
an emotional reference unless the question was accompanied by a familiar food item for
visual input. Additionally, research by Bucks and Radford (2004) noted that individuals
with Alzheimer’s disease were able to recognize non-verbal emotional cues (i.e.
happiness, sadness, anger, fear, and neutrality). Therefore, non-verbal cues such as the caregivers' tone of voice and the ability to demonstrate their level of interest in interacting with the residents were considerations in categorization of the caregivers' questions.

Table 5. Number of Emotional (E) and Non-emotional (NE) Questions Used by the Caregivers.

<table>
<thead>
<tr>
<th>Typ of questions</th>
<th>Number of questions (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(E)</td>
<td>(NE)</td>
</tr>
<tr>
<td>Yes/no</td>
<td>157 (45%)</td>
<td>192 (55%)</td>
</tr>
<tr>
<td>Open-ended</td>
<td>34 (26%)</td>
<td>99 (74%)</td>
</tr>
<tr>
<td>Clarification</td>
<td>14 (23%)</td>
<td>46 (77%)</td>
</tr>
<tr>
<td>Total questions</td>
<td>205 (38%)</td>
<td>337 (62%)</td>
</tr>
</tbody>
</table>

Numbers in parentheses in this and the following tables are percentages.
Tables 5 and Figure 6 summarize the distribution of the caregivers' questions with respect to type and emotional content. One hundred fifty seven (45%) of the 349-yes/no questions, 34 (26%) of the open-ended questions, and 14 (23%) of the questions used for clarification were classified as containing emotional references that could activate memories, and overall, 205 (38%) of the 542 total questions contained emotional references.

Changes in the Residents' Disruptive Vocalizations as a Function of the Caregivers Language

The residents' responses following the caregivers' communicative interactions were analyzed according to the residents' level of disruptive behavior. The residents'
responses were categorized as a decrease in disruptive vocalizations (resident was calm and interacted appropriately with the caregiver), an increase (increased volume or signs of increased agitation), or no change in disruptive vocalizations (continued to use the same disruptive vocalizations).

Table 6. Change in Disruptive Vocalizations (DV) in Response to Questions with Emotional References.

<table>
<thead>
<tr>
<th>Type of questions</th>
<th>Decrease in DV (%)</th>
<th>No Change in DV (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/no</td>
<td>139 (89%)</td>
<td>18 (11%)</td>
<td>157</td>
</tr>
<tr>
<td>Open-ended</td>
<td>22 (65%)</td>
<td>12 (35%)</td>
<td>34</td>
</tr>
<tr>
<td>Clarification</td>
<td>13 (93%)</td>
<td>1 (7%)</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>174 (85%)</strong></td>
<td><strong>31 (15%)</strong></td>
<td><strong>205</strong></td>
</tr>
</tbody>
</table>

*Note*: no questions with emotional references resulted in increased DVs.
Table 6 and Figure 7 show the relationship between the question type and disruptive vocalizations for questions with emotional references. Yes/no questions were 89% successful at decreasing disruptive vocalizations, open-ended questions were 65% successful, and clarifications were 93% successful. Overall, 85% of the emotional questions were successful at decreasing disruptive vocalizations in comparison to 15% of the emotional questions resulting in no change in the residents' level of disruptive behavior.

As a comparison to the changes in disruptive vocalizations following emotional and non-emotional questions, Table 7 and Figure 8 provide the relationship between the question type and disruptive vocalizations for questions with no emotional references.
Table 7. Change in Disruptive Vocalizations (DV) in Response to Questions with no Emotional References.

<table>
<thead>
<tr>
<th>Type of questions</th>
<th>Decrease in DV (%)</th>
<th>No Change in DV (%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/no</td>
<td>121 (64%)</td>
<td>68 (36%)</td>
<td>189</td>
</tr>
<tr>
<td>Open-ended</td>
<td>30 (31%)</td>
<td>67 (69%)</td>
<td>97</td>
</tr>
<tr>
<td>Clarification</td>
<td>17 (37%)</td>
<td>29 (63%)</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>168 (51%)</td>
<td>164 (49%)</td>
<td>332</td>
</tr>
</tbody>
</table>

*Note:* The 5 questions resulting in an increase in disruptive vocalizations have been removed from the study.

Figure 8. Percent of Change in the Residents’ Disruptive Vocalizations Following Each Type of Caregiver Question With no Emotional References.
As shown in Table 7 and Figure 8, decreases in disruptive vocalizations followed 64% of the non-emotional yes/no questions, 31% of the open-ended questions, and 37% of the questions used for clarification. Overall, 51% of the questions with no emotional references were successful in decreasing disruptive vocalizations, with 49% resulting in no change in the residents’ behavior.

Two major patterns emerge from this data. First, all types of questions with emotional references were more successful in decreasing the residents’ disruptive vocalizations than questions with no emotional references (comparison of Tables 6 & 7). A decrease in the residents’ disruptive vocalizations occurred more often following questions with emotional references than following caregiver questions that contained no emotional references (85% vs. 51%, respectively). A Chi-square analysis indicated that this difference was highly significant, $X^2(1, N = 107) p = < .000$.

Second, yes/no questions were more effective than other types of questions in decreasing disruptive vocalizations. A decrease in the residents’ disruptive vocalizations occurred significantly more often following yes/no questions (overall 75% successful) than following other types of questions (overall 43% successful). A Chi-square analysis indicated that this difference was highly significant, $X^2(2, N = 107) p = < .001$.

Caregiver Questionnaires

The caregivers completed two questionnaires related to their interactions with the residents (see Appendix D: Resident Behavior Rating Scale and Appendix E: Open-ended Questionnaire for Caregivers of Dementia Residents). The purpose of the questionnaires was to gain a better understanding of the caregivers’ perceptions of the effect of their interactions with the residents.
Questionnaire 1: Resident Behavior Rating Scale

The completion rate of the Resident Behavior Rating Scale was 80% as the caregivers were available to complete the questionnaire after only 40 of the 50 resident/caregiver interactions. Table 8 lists the content of the 5 items used in the first questionnaire and the type of rating scale used for the responses. A score of “1” was the most negative and “10” represented the most positive score.

Table 8. Questionnaire 1: Items and Rating Scales.

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Level of disruptiveness prior to interaction</td>
<td>1 = out of control, 10 = stopped disruptions</td>
</tr>
<tr>
<td>2. Level of disruptiveness following an interaction</td>
<td>1 = out of control, 10 = stopped disruptions</td>
</tr>
<tr>
<td>3. Caregiver time required by the resident</td>
<td>1 = excessive, 10 = same as other residents</td>
</tr>
<tr>
<td>4. Manageability of the resident</td>
<td>1 = not manageable, 10 = no difficulty</td>
</tr>
<tr>
<td>5. Enjoyment of the communicative interaction</td>
<td>1 = none, 10 = same as other residents</td>
</tr>
</tbody>
</table>

Items 1 and 2: Caregiver Perceptions of Level of Disruptiveness

The purpose of items 1 and 2 was to determine if the caregivers felt that there was a difference in the residents' disruptive behaviors following the caregivers' attempt to communicate with the residents. The caregivers were asked to rate the residents' behavior prior to and following the communicative interactions that had taken place during the one-hour observation that had just been completed. The scale ranged from a rating of 1 = the resident was out of control to a rating of 10 = the resident stopped the disruptive
vocalizations. The first question asked for the caregiver's rating of the resident's disruptive vocalizations prior to the communicative interactions. The caregiver responses on this question ranged between ratings of 2 and 10 ($M = 7.08, SD = 2.74$). The second question asked for the caregiver's rating of the resident's disruptive vocalizations following the communicative interactions. The caregiver responses on this question also ranged between ratings of 2 and 10 ($M = 7.18, SD = 2.89$). When the caregivers responded with the same number (rank) on items 1 and 2, this meant that they perceived that the level of disruptiveness was unchanged. Otherwise, any change in rating was considered as indicating an increase or decrease in disruptive vocalizations. Even though the caregiver responses entailed a wide range of numbers, the means, medians, and modes were very close. This indicates that overall the caregivers did not perceive a significant change in the residents' level of disruptive behaviors during the one-hour observations.


<table>
<thead>
<tr>
<th>Type of data</th>
<th>Decreased DV %</th>
<th>Increased DV %</th>
<th>No Change in DV %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed data</td>
<td>64</td>
<td>&lt;1</td>
<td>36</td>
</tr>
<tr>
<td>Caregiver report</td>
<td>27.5</td>
<td>20</td>
<td>52.5</td>
</tr>
</tbody>
</table>
Change in DV

The information regarding caregiver perceptions of disruptive vocalizations was compared to data from the observed sessions using all types of questions used by the caregivers since the caregivers were rating the entire hour of interactions on the Resident Behavior Rating Scale. Table 9 and Figure 9 compare the data from the caregivers’ perceptions with the observed data. The observed data shows a caregiver success rate of 64% in decreasing disruptive vocalizations using all types of questions. In contrast, using the Resident Behavior Rating Scale, the caregivers reported decreased disruptive behaviors as occurring only 27.5% of the time. Also, the caregivers reported increases in disruptive behaviors 20% of the time as compared to less than 1% revealed by analysis of the observed data (removed from the study). The caregivers reported no changes in
disruptive behavior 52.5% of the time as compared to the observed sessions' report of 36% of the interactions resulting in no change in the residents' disruptive vocalizations.

In summary, these comparisons indicate a difference between the actual result of the caregivers' interactions and what they perceive to be happening. Overall, the caregivers are more successful in decreasing disruptive vocalizations and the residents' disruptive vocalizations do not increase as the caregivers perceive.

*Items 3, 4, & 5*

Item 3 required the caregivers to consider the time they spent caring for the vocally-disruptive residents as compared to the amount of time required by non-disruptive residents. On the scale, a rating of one was given if the caregiver felt that the resident required an excessive amount of their time and could be rated as high as ten if the resident required the same amount of time as the other residents. The caregiver ratings on this item ranged from a rating of two indicating a high amount of time required by the residents to a rating of ten ($M = 7.13, SD = 2.99$; see Appendix F). Only one-third of the caregiver reports (13/40) resulted in a rating of 10 (same amount of time required as other residents).

Item 4 on the questionnaire required the caregivers to give an indication of their ability to manage the residents (1 = not able to manage and 10 = no difficulty in management). The caregiver responses ranged from ratings of one to ten ($M = 6.95, SD = 3.31$). Only 30% of the caregiver reports gave the residents the most positive score of 10 (no difficulty in management of the resident). This indicates that most of the caregivers perceived some difficulty in the management of vocally-disruptive residents as compared to caring for the other residents.
The fifth and final item on the questionnaire required the caregivers to rate their level of enjoyment when interacting with the residents participating in the study as compared to non-disruptive residents (1 = absolutely none and 10 = same as other residents). The caregiver responses ranged from one to ten \((M = 7.72, SD = 3.06)\). However, 21 of the 40 caregiver/resident interactions resulted in a rating of 10 (same enjoyment as when interacting with the other residents) on this question. These scores indicated that the caregivers felt that caring for residents who are vocally-disruptive was not as enjoyable as interacting with non-disruptive long-term care residents.

**Questionnaire 2: Open-ended Questionnaire for Caregivers of Dementia Residents**

The caregivers completed a second questionnaire consisting of six open-ended questions concerning their perception of working with the residents who were vocally-disruptive. The purpose of this questionnaire was to obtain more in-depth information regarding the caregivers' knowledge regarding the inclusion of specific language and their perceptions of what was taking place during the communicative interactions.

This questionnaire required more of the caregivers’ time than the first questionnaire and was finished only after all observations within a facility had been completed. Two of the 30 caregivers participating in the study were not available at the end of the observations within their facilities to complete the questionnaires.
Table 10. Open-ended Questions Completed by the Caregivers.

1. Identify the type of disruption used by the resident: inappropriate verbalizations, loud talk, loud singing, cursing, disruptive talk, chatting, mumbling, yelling, groaning, howling or sighing, other __________

2. In your opinion, what causes the resident to attempt communicating in the manner that you indicated in the question above?

3. How do you respond to the resident following their attempt to communicate? Please try to give some examples.

4. Do you try using any special words, sentences, or actions? If so, please try to provide examples.

5. Do you feel that certain words, sentences or actions are more successful than other types of interactions when you are working with the disruptive resident?

6. Do you have any expectations or ideas of how the resident will respond to you?

Table 10 provides a list of the questions and Appendix E contains the questionnaire that was completed by the caregivers. Item 1 of the questionnaire required the caregivers to identify the residents' attempts to communicate through disruptive vocalizations and item 2 requested the probable cause for the disruptions. Items 3, 4, and 5 addressed the caregivers' interactive styles by listing special words, sentences, or actions that they used during interactions with the resident. On the last item, the caregivers were asked to describe the type of responses that they expected from the residents. The information from this questionnaire indicated that most of the caregivers have the awareness of disruptive vocalizations, approximately one-half of the caregivers had expectations of the residents' behaviors, and the caregivers who were most
successful at decreasing disruptive vocalizations most often reported using language containing references to past memories.

**Item 1: Type of Disruption Used by the Resident**

The purpose of the first item was to assist the caregivers in focusing on the disruptive vocalizations of the residents participating in the study. The descriptive terms for vocal disruptions were taken from Cohen-Mansfield and Werner's (1997) Typology of Vocalizations describing the types of sounds that are characteristic of vocally-disruptive behavior made by an individual with dementia. The caregivers identified yelling (14), disruptive talk (14), inappropriate verbalizations (10), and loud talk (9) as the major types of disruptions experienced by the residents who participated in the study. Cursing (3), chatting (3), howling (3), mumbling (2), loud singing (1), groaning (1), and sighing (1) were identified as disruptive characteristics less often. In the classification of "other," caregivers had written repetitions (4), crying (1), disoriented talking (1), and name-calling (1) as descriptions. Characteristics listed in the residents' medical histories (i.e., medical chart review) included repetitive questioning (8 residents) and verbally abusive (2 residents). The caregiver reports were consistent with the disruptive behaviors noted during the audio-recorded sessions.

**Item 2: Cause of the Residents' Attempt to Communicate**

The second question investigated the caregivers' perception of the cause of the disruptive vocalizations. Table 11 provides examples of the caregivers' descriptions of the residents' reason for attempting to communicate.
Table 11. Examples of the Caregiver Descriptions of the Residents' Reason for Attempting to Communicate.

- Confused, not knowing where they are at, feels lost, why aren't they at “home”
- Agitated, feeling that needs are not met
- Needs attention, needs someone to listen, wants to go for a ride in wheelchair
- Boredom, lonely, afraid, doesn’t like to be alone
- Worried about “loved ones,” family members
- Wants to go to bed
- Wants to go to the bathroom
- Disease process, decreased cognitive skills

Identifying the residents as being “confused” was a frequent response to this question. Other commonly-used terms included lost, fearful, worried about self or family, sad, lonely, tired, wanting to go to bed or to the bathroom.

Item 3: Caregiver Response to Residents’ Communication Attempt

The remainder of the questions required the caregivers to think about their own interactive styles. Item 3 asked the caregivers to think broadly about their style of communication.
Table 12. Examples of Responses That the Caregivers Reported Using Following the Residents’ Disruptive Vocalizations.

- Offer reassurance: “Your daughter is teaching school.” “I can give you a ride home when my car comes back from the shop.”

- Use distraction/redirection: give the resident a ride in wheelchair, offer water, talk about something different, do a little dance to make her laugh

- Give attention. Short 1:1, sometimes she just wants to talk to someone, so I will sit down & chat with her. Listen and let her lead the conversation if she can.

- Ask short questions: “Are you in pain”, “Is this something we can talk about.”

- Validate feelings and concerns. Tell her that her family is safe & doing fine.

- Kneel down to her level, physical touch to the arms and hands. Apply nail polish or lotion. Use eye contact and facial expressions.

- Not really, mostly ineffective. No. You just have to let her be.

The caregivers’ reports on the types of communicative responses that they used most often included providing reassurance, using distraction or redirection, giving the residents attention, asking short questions, validating the residents’ feelings, and providing personal attention in eye contact, facial expression and through physical touch. Table 12 provides some examples of these responses.

Item 4: Caregiver Use of Special Words, Sentences, or Actions

Item 4 required the caregivers to be more focused on specific language form and content that they used while interacting with the residents.
Table 13. Examples of Special Words, Sentences, or Actions Reported by the Caregivers.

- Offer reassurance: we will take care of you, your family will come when they can, your family knows where you are, everything is ok, you are safe.

- Remain positive, calm, and pleasant, use a happy, nice voice with a smile on the face, wave, say hi or smile.

- Touch or hug the resident, offer something special they want (a movie, dancing), offer snacks, and compliment her hair.

- Give full attention; use validation techniques where I go into the world/reality in her mind not in ours. Talk about resident’s children; ask specific questions about raising children. Ask for their opinion on various topics. Mention people they know (family members and old neighbors).

- Use as few words as possible, direct statements. Speak a few words in a different language.

Responses to this item were similar to item 3. Examples are shown in Table 13. Offering reassurance and validation of the residents’ feelings were the most common responses to this question. The caregivers’ responses indicated an awareness of the necessity of using both verbal and non-verbal communication skills such as eye contact, smiling, and talking about things that are interesting to the resident (family/friends, home town, and dancing, specific food/drink items). However, when caregivers were asked about a resident’s personal history (family, previous employment of self or spouse, home town) during the observation sessions, this information was not consistently known by all of the caregivers. This indicated that communicating through the use of personally relevant information was not always implemented. Additionally, two caregivers answered no to this item.
Item 5: Words, Sentences or Actions used by the Caregivers that were More Successful

The purpose of item 5 was to determine if the caregivers had an awareness of successful communicative strategies that contained emotional references pertinent to the specific resident. Table 14 provides examples of the caregivers’ report of certain words, sentences or actions that were more successful when working with the disruptive residents.

Table 14. Examples of More Successful Communicative Interactions.

- Validation vs. reality orientation. Must go where the resident is at.
- Be patient & put aside a few minutes to calm them down.
- Soothing voice, calm manner, eye contact, humor.
- Keep their mind off what made them agitated, redirect, talk about flowers.
- Some words sound more familiar and caring, then they trust you.
- Tell her that her son or daughter would like her to do something.
- Use her name or simple words in Spanish.
- Get to know specific residents’ backgrounds.
- Offer a snack or coffee.

The caregivers reported using validation, patience, one-on-one attention, a soothing voice, calm manner, eye contact, and humor. Communication techniques (emotional referencing) reported by the caregivers that lend themselves to accessing emotional memories included validation of the resident’s choice of topic, mentioning specific information from the resident’s background such as names of family members or
hometown, using favorite terms from another language, and offering snacks or drinks that have a comforting feeling related to the past (i.e., coffee).

Item 6: Expectations or Ideas of How the Residents Would Respond

The purpose of item 6, the final question, was to investigate the caregivers’ ability to formulate communicative interactions with the intent of changing the residents’ disruptive behaviors (i.e., expectations of how the resident would respond). As with items 3, 4, and 5, this item indirectly focuses on the caregivers’ language content (i.e., emotional vs. no emotional references).

Table 15. Examples of How the Caregivers Expect the Resident to Respond.

<table>
<thead>
<tr>
<th>Indicating expectation of response</th>
<th>Indicating no expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreased anxiety, fear and disruption, if even for a short time when consistently using responses we have learned to be appropriate for a particular client.</td>
<td>Depending on how I feel today or who I am working with will mostly determine that. Most of their attitudes &amp; behaviors are a reaction to us!</td>
</tr>
<tr>
<td>Many times calm.</td>
<td>Client is unpredictable.</td>
</tr>
<tr>
<td>Client always responds calmly &amp; respectfully.</td>
<td>Depends on how she’s feeling or her mood.</td>
</tr>
<tr>
<td>I expect the resident to respond to me.</td>
<td>It changes daily.</td>
</tr>
<tr>
<td>Will calm after needs are met.</td>
<td>I try to go with the flow of things.</td>
</tr>
<tr>
<td>The behavior will quit or at least lessen.</td>
<td>I don’t have any idea how they will react to anything. Each day is different.</td>
</tr>
</tbody>
</table>

The responses to this item were mixed in nature as shown in Table 15, ranging from feeling confident that the residents would react positively to the interactions to some caregivers believing that it did not matter how they interacted with the residents.
Variables guiding the residents' responses to the caregivers included the residents' mood and unpredictability of the residents. Interestingly, one caregiver felt that the result of the interaction depended on how he/she felt that day, as most of the residents' attitudes and behaviors are a reaction to the caregivers.

In summary, the purpose of this questionnaire was to obtain more in-depth information regarding the caregivers' knowledge on the inclusion of specific language and their perceptions of what was taking place during the communicative interactions. Overall, the caregivers were able to identify disruptive vocalizations and provide a probable cause for the disruptions. Further, through the caregivers' responses, some of them appear to be equipped with strategies to decrease the vocal disruptions.
CHAPTER FIVE

DISCUSSION

Individuals in the later stages of dementia are known to use disruptive vocalizations as the most common form of attempted communication. The inability to access words stored in long-term memory causes the individual to resort to disruptive vocalizations in an attempt to communicate. The caregivers are challenged to determine what kinds of communication will mitigate these disruptions. Previous studies have reported that individuals with dementia are able to access words stored in long-term memory through the activation of the emotional memory lane and have the ability to comprehend emotional components of communication (Arntz et al., 2005; Bucks & Radford, 2004; Dolcos et al., 2005; Forstl, 2000; Kensinger et al., 2004; Magai & Cohen, 1998; Magai et al., 1997; Magai et al., 2002). Therefore, it is important to know if caregivers are incorporating emotional triggers into their communicative interactions. In theory, these triggers will stimulate the individuals' with dementia access to their memory and the ability to recall words in order to appropriately respond during conversation and thus, decrease disruptive vocalizations. Previous research therefore has recommended continued study of the impact of emotional stimuli for individuals with dementia (Baker, 1996; Finnema et al., 2000; Kensinger et al., 2004; Magai et al., 2002).

The primary reason for this study was to determine if the communicative interactions of individuals in the later stages of dementia could benefit, through decreased disruptive vocalizations, from their caregivers using language that would assist the
individuals with dementia in gaining access to emotional memories that had been developed throughout a lifetime of experiences. The focus of the study was to determine the effect of the use of questions that contain references to emotional memories to decrease the disruptive vocalizations produced by the individuals with dementia in an attempt to communicate their needs. The study determined that: (1) caregivers used more yes/no questions than open-ended, clarification, or multiple-choice questions, (2) all types of emotional questions were more effective than all types of non-emotional questions in decreasing disruptive vocalizations, (3) yes/no questions were more effective than other types of questions in decreasing the residents' disruptive vocalizations, (4) emotional yes/no questions were the most effective means of decreasing disruptive vocalizations, and (5) the caregivers who were the most successful at decreasing disruptive vocalizations showed a greater knowledge of the importance of accessing emotional memories in individuals with dementia.

Types of Questions Used by the Caregivers

The first major finding was that caregivers used more yes/no questions than open-ended, clarification, multiple-choice, or repetitions. Thirty caregivers used 537 questions during nineteen hours of observation while interacting with vocally-disruptive residents. 64% of these questions were of the yes/no format as compared to 25% being open-ended questions and 11% of the questions used for clarification. In 1997, Tappen et al. found that caregivers used twice as many closed-ended (yes/no, multiple choice) as open-ended questions when conversing with individuals in the middle and late stages of dementia. The authors suggested that the caregiver’s use of closed-ended questions may be more helpful to the individual with dementia, especially when completing activities of daily
living (i.e., “Do you want to go to bed?” or “Do you want to wear the green shirt?” vs. “What do you want to do?” or “What do you want to wear?”). Additionally, in 2003, Small et al. identified the yes/no question format as one of the strategies used by caregivers of individuals with Alzheimer’s disease (other strategies: eliminate distractions, approach slowly, use eye contact, simple sentences, one question, paraphrase, and don’t interrupt). The authors reported that the caregivers used twice as many closed-ended questions as open-ended questions.

The Effect of Emotional Content on Disruptive Vocalizations

The second finding was that all types of emotional questions were more effective than non-emotional questions in decreasing disruptive vocalizations. Of the 537 total questions used by the caregivers, 38% were classified as having emotional content and 62% were classified as non-emotional. The emotional questions resulted in a decrease in the residents’ disruptive vocalizations 85% of the time. In comparison, the non-emotional questions resulted in decreased disruptions only 51% of the time. These findings are consistent with studies in the area of dementia reporting that the activation of emotional memories is retained in individuals with dementia. This enables them to recall the appropriate words for successful communicative interactions. In a study by Magai et al. (2002), the caregivers of individuals with dementia in long-term care facilities were trained in understanding emotions and nonverbal communication (i.e., it is beneficial to notice and validate the individual’s with dementia affect). The results showed that individuals with dementia retain an emotional awareness both in expression and in response to emotional expressions that are displayed by others. In 2004, Bucks and Radford reported that individuals with Alzheimer’s disease were able to display
emotional processing abilities in recognition of non-verbal emotional cues (i.e., happiness, sadness, anger, fear, and neutrality) and showed improved communication with comprehension of these emotions. The present results are in line with these studies.

The Effect of Question Type on Disruptive Vocalizations

Yes/no questions were the most effective question type in decreasing the residents' disruptive vocalizations. Of the 346-yes/no questions, 75% were followed by a decrease in disruptive vocalizations as compared to 39% of the open-ended questions and 50% of the clarification questions. This finding is consistent with the results of several other studies. In 1997, Ripich et al. developed a program to train caregivers of individuals with Alzheimer's disease in strategies to decrease some of the daily hassles related to communication and caregiving. One of the main components of their program was training caregivers to use yes/no questions. The authors reported that 83% of the caregivers' yes/no questions resulted in successful communications by the individuals with Alzheimer's disease. Additionally, in 2003, Small et al. reported that yes/no questions were one of three communication strategies (along with eliminating distractions and speaking in simple sentences) that were consistently effective in reducing breakdowns between the individuals with dementia and the caregivers. The authors found that the individuals with dementia responded appropriately following 67% of the yes/no questions asked by their caregivers. Small and colleagues suggest that the caregivers' yes/no questions are more successful at decreasing disruptive vocalizations because they decrease the demand on the memory system of the individual with Alzheimer's disease. Given the previously-stated findings, it is not surprising that the studies' strongest finding concerns the effect of yes/no emotional questions on disruptive vocalizations.
Types of Questions, Content, and Changes in Disruptive Vocalizations

Of the emotional yes/no questions, 89% resulted in decreased disruptive vocalizations. As mentioned, other studies have noted the benefits of yes/no questions (Ripich et al., 1997; Small et al., 2003), and the benefits of emotional content in interactions (Bucks & Radford, 2004; Magai et al., 2002). This study provides evidence of the remarkably robust effect achieved when these two factors are combined.

Caregiver Demographics

Information regarding the caregivers was provided through completion of a demographic profile. Demographic variables included age, gender, ethnicity, education, employment status, years of experience in the present position, along with the amount of training that the caregivers had in caring for individuals with dementia. No major differences in the style or success of communicative interactions were evident in the areas of age, gender, education or employment status.

Caregiver Perceptions

Data from the caregivers’ point of view were collected as an additional component of the study in order to gain a better understanding of the caregivers’ perceptions of working with individuals with dementia. Two questionnaires completed by the caregivers, (the Resident Behavior Rating Scale and the Open-ended Questionnaire), were used for further analysis of resident/caregiver interactions.

The Resident Behavior Rating Scales were completed by the caregivers following each one-hour audio-recorded session and consisted of five questions. Two questions compared the caregivers’ perceptions of the residents’ level of disruptive vocalizations prior to and following the resident/caregiver interactions. The caregivers reported a
decrease in the residents' vocalizations 28% of the time, an increase in the level of
disruption 20% of the time, and no change in the level of disruption 53% of the time. In
contrast, the audio-recorded data showed that, following interactions, 64% of the time
there was a decrease in the residents' disruptive vocalizations, less than 1% of the
interactions resulted in an increase of disruptive vocalizations, and 36% of the time there
was no change in behavior (see Table 9 & Figure 9). Thus, the results showed that the
caregivers' perception of the success rate of the communicative interactions was
significantly lower than the observed data indicated. A study by Small et al. (2003) on the
effectiveness of communication strategies used by caregivers also found a difference
between the caregivers' subjective ratings and the objective data collected during the
observations. In their study, the results were reversed from this study. The subjective
ratings by the caregivers reported a greater number of successful interactions as
compared to the data collected from the observations showing only partial or no success
as a result of the interactions. In both studies, some of the discrepancies in caregiver
perceptions and actual results may be related to the caregivers not being completely
aware of what constitutes a successful interaction. Additionally, some of the discrepancy
in the present study may have been related to the caregivers completing only one report at
the end of the one-hour sessions rather than analyzing each interaction, as was done with
the audio-recorded data. Also, because the caregivers were aware that the focus of the
study was the residents' disruptive behaviors, the caregivers may have focused more on
the residents' disruptive behaviors and less on the success of the resident/caregiver
interactions. In any case, these results suggest that some caregivers are relatively unaware

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of the effects of their interactions with the residents. As a result, they also may be unaware of the effects of their interactive language.

The remainder of the Resident Behavior Rating Scale required the caregivers to provide their perceptions of the time required to care for the vocally-disruptive residents, the manageability of the residents, and the enjoyment of working with these vocally-disruptive residents as compared to other dementia residents. 68% of the caregiver reports indicated that the amount of time required by the disruptive resident was somewhat greater than the time required when working with other dementia residents, 70% of the caregiver reports indicated more difficulty in managing the vocally-disruptive resident as compared to other residents, and 50% of the caregivers reported less enjoyment as compared to working with non-disruptive residents. Likewise, in previous research by Hallberg et al. (1990), the caregivers spent 51 minutes completing the daily physical care activities of individuals who displayed vocally-disruptive behaviors as compared to 39 minutes being required to care for individuals who did not display disruptive behaviors. Cohen-Mansfield (2001) addressed the management of aggressive behaviors that occur with an individual in the late stages of dementia. She discusses the importance of accommodating the individual (e.g., adjusting the daily routine and environment, providing social contact and meaningful activities, and assessing the underlying needs of the individual) to decrease the impact of their inability to verbally communicate. These are problems that require extra time and effort when working with individuals with dementia who are vocally-disruptive.

The second type of caregiver report was an open-ended questionnaire that was completed by the caregivers after all of the observations had been completed within a
facility. The main purpose was to obtain information regarding the caregivers' awareness of the kind of language that they used with the residents and their perceptions of what was taking place during the communicative interactions.

Three questions required the caregivers to think about their own interactive styles, first in a broad sense, then by addressing specific interactive skills. In responding to these questions, 61% of the caregivers reported using communicative strategies that involved emotional components, including providing reassurance, validating the resident's feelings, and talking about things that were interesting to the resident (family/friends, home town, dancing, and specific food/drink items). Previous studies have reported these techniques to be successful in facilitating communications with individuals with Alzheimer's disease (Bourgeois, 2002; Hopper, 2001; Ripich et al., 1999; Zientz et al., 2007). This limited use of communication strategies with emotional components (39% of the caregivers did not report using them) was also noted by the principal investigator during the observed sessions. When asked by the principal investigator about a resident's personal history (family, previous employment of self or spouse, home town), the caregivers could not consistently supply this information. The inability of the caregivers to relate this information indicates that at least some of the caregivers were not aware of the importance of personally relevant information that could act as a mode of access to the emotional memory lane, and ultimately to help decrease the residents' disruptive vocalizations.

The final question on this questionnaire asked the caregivers whether they had any expectations or ideas of how the residents would respond following the resident/caregiver interactions. The purpose of this question was to investigate the
caregivers' ability to formulate communicative interactions with the intent of changing the residents' disruptive behaviors. The responses to this item were mixed. Responses ranged from the term “calm” being used by one fourth of the caregivers as their expectation of the residents’ response to the caregivers’ interactions to one-fourth of the caregivers responding with no expectations regarding the residents’ response. Half of the caregivers indicated feelings of confidence that the resident would react positively to the interactions, but the other half of the caregivers reported uncertainty or that they had no expectations of how the resident would respond to them. The caregivers’ perceptions of some the variables guiding the residents’ responses to the caregivers included the residents’ mood and unpredictability of the resident. One caregiver felt that the result of the interaction depended on how he/she felt that day, as most of the residents’ attitudes and behaviors are a reaction to the caregiver. One can infer from these results that up to one-half of the caregivers felt that their behavior had little effect on the nature of resident behavior. These caregivers would have little incentive to monitor the form and content of their language.

Caregiver Success Factors

The caregivers’ responses to the questionnaires displayed some knowledge and awareness of communicative strategies that were successful. However, a large portion of the caregivers lacked knowledge of communication strategies that employed references to emotional memories. Additionally, many caregivers seemed not to understand that their language affected the outcome of the communicative interactions. Examination of the data indicated that there was wide variation in the success of individual caregivers in decreasing disruptive vocalizations. In an attempt to explain this variation, the possible
effects of various caregiver attributes were examined. These attributes included the
caregivers’ demographic variables, their perceptions of their ability to assist the residents
in decreasing disruptive vocalizations, and their expectations of how the residents would
respond to the caregivers.

The measure of caregiver success used was the rate of decrease in the residents’
disruptive vocalizations following all types of caregiver questions, expressed as a
percentage (see Appendix H). To calculate the success rate for each caregiver, the
number of questions used by the caregiver and the number of decreases in the residents’
disruptive vocalizations following the questions were determined. Then, the “success
rate” of each caregiver was calculated as a percentage (number of decreases in disruptive
vocalizations divided by the number of caregiver questions x 100).

In an attempt to determine if particular attributes were associated with success in
decreasing disruptive vocalizations, caregiver success rates were correlated with
demographic variables of the caregivers. Table 16 presents the probability of significance
for these correlations. It shows that no significant correlations were obtained for any of
the demographic variables (age, gender, ethnicity, education, employment, experience,
and training in dementia care).

Table 16. Spearman’s Correlation of Caregiver Demographics and the Rate of Decrease
in Disruptive Vocalizations (n = 28).

<table>
<thead>
<tr>
<th>Caregiver demographics</th>
<th>Age</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Education</th>
<th>Employment</th>
<th>Experience</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>rho</td>
<td>.243</td>
<td>-.122</td>
<td>.035</td>
<td>.213</td>
<td>.155</td>
<td>.032</td>
<td>.138</td>
</tr>
<tr>
<td>p value</td>
<td>.214</td>
<td>.538</td>
<td>.859</td>
<td>.277</td>
<td>.431</td>
<td>.871</td>
<td>.484</td>
</tr>
</tbody>
</table>
Because the correlational analysis failed to provide any insights, an informal analysis of the data was attempted to determine whether certain caregiver linguistic patterns were associated with the caregivers' success in decreasing the residents' disruptive vocalizations. Caregiver success rates were rank-ordered from the caregivers with the greatest amount of success in decreasing disruptive vocalizations to the caregivers with the least amount of success in decreasing disruptive vocalizations. Two groups were identified: caregivers who were at least 75% successful in decreasing disruptive vocalizations (n = 9) and caregivers who were less than 25% successful in decreasing disruptive vocalizations (n = 6). Comparisons were made between the two groups, first on the number of questions used, and second, the number of yes/no questions with emotional references that the caregivers used. The most successful group of caregivers used an average of 6.5 questions which resulted in decreased disruptive behaviors during each one-hour session. In comparison, the least successful group of caregivers used an average of 4.6 questions which resulted in decreased disruptive behaviors during each one-hour session. Thus the most successful group of caregivers used more questions than the least successful group, but the difference was hardly dramatic. Further comparisons showed that the most successful group of caregivers used an average of 3 yes/no questions with emotional references as compared to the least successful group of caregivers using an average of 0.4 yes/no questions during each one-hour session. Hence, the most successful group of caregivers used yes/no questions with emotional references 7 times more often than the least successful group of caregivers. This analysis supports the findings regarding question type and content presented in the Results Section.
Next, the percent of success in decreasing disruptive vocalizations was compared to information collected from the Open-ended Questionnaires (see Appendix E). The caregivers’ responses to items 3, 4, and 5 on the questionnaire were inspected for references to the use of language that would assist the residents in accessing emotional memories. Six of the nine caregivers in the most successful group of caregivers made references to the efficacy of emotional language components on the Open-ended Questionnaire. In comparison, none of the caregivers in the lowest group made references to emotional language components. This may indicate that caregivers who are the most successful in decreasing disruptive vocalizations are aware of the importance of accessing emotional memories in individuals with dementia and are more successful at implementing emotionally referenced communication strategies.

The final analysis was to determine if there were any common factors in the caregivers’ expectations of how the residents would respond to the caregivers’ communicative interactions (item F on the Open-ended Questionnaire) and the caregivers’ success in decreasing the residents’ disruptive vocalizations. The caregivers’ responses to this question were mixed in nature, ranging from feeling confident that the residents would react positively to the interactions to some caregivers believing that it did not matter how they interacted with the residents. Variables guiding the residents’ responses to the caregivers included the residents’ mood and unpredictability of the residents. Interestingly, one caregiver felt that the result of the interaction depended on how he/she felt that day, as most of the residents’ attitudes and behaviors are a reaction to the caregivers. Unlike the caregivers’ reports of the most successful caregivers using more emotional references to access emotional memories of the resident (items 3, 4, & 5
on the questionnaire), no common factors were noted with the caregivers’ expectations of the residents and the caregivers’ success rates in decreasing disruptive vocalizations. A Spearman’s correlation showed no significance in the caregivers’ success rates and caregivers expectations ($n = 28$, $\rho = .927$). These findings may explain why caregivers more often than not used language that was less than optimal for minimizing disruptive outbursts.

**Limitations of the Current Research**

The primary purpose of this study was to determine if the caregivers’ use of language that contained emotional references to past experiences would benefit individuals with dementia. Therefore, the study took place in the natural setting and during the normal work schedule of the caregivers who participated in the study. The presence of the principal investigator very likely had an impact on the interaction techniques used by some of the caregivers. They may have been more aware of their interaction style, worked harder to impress the principal investigator, or possibly ignored the resident if they did not feel confident with their interactive skills or believed that nothing would change the situation. A nursing supervisor at one of the facilities reported liking when the principal investigator was in the facility as the staff was more attentive to the residents and worked harder. Additionally, some caregivers would anticipate possible disruptive episodes and interact with the resident prior to any disruptions.

The presence of the principal investigator may also have had an impact on the residents. It was beneficial to the study for the principal investigator to interact with the caregivers and all of the residents with the goal of decreasing the awareness of the principal investigator’s presence in the facility for both the caregivers and the residents.
who participated in the study. Unfortunately, having an additional person in the dementia unit helped in creating a more socially active environment than usual. This could possibly have resulted in the residents being less disruptive with the increase in individuals to interact with them. By the fifth visit, the residents often acknowledged the principal investigator as a regular visitor to the facility.

The questionnaire that was completed by the caregivers following the one-hour observation (Appendix A) caused some confusion with the most positive rating being a “10” and the most negative rating being a “1.” Nursing staff is familiar with pain scales using a rating of “1” as a positive response (no pain) and a rating of “10” representing the negative component (significant pain). Additionally, the caregivers often expressed apprehension about “rating” their interactions with the residents and did not appear to put much thought into the ratings. In order to decrease caregiver anxiety, the Resident Behavior Rating Scales were completed anonymously.

Conclusions and Implications

This study supports other studies in that individuals with dementia do benefit from the activation of emotional memories (Bucks & Radford, 2004; Kensinger et al., 2004; Magai & Cohen, 1998; Magai et al., 1997; Magai et al., 2002). The results of this study show that the inclusion of emotional references to past memories into all types of questions used by caregivers is beneficial when interacting with individuals who are in the later stages of dementia (85% of questions containing emotional references resulted in decreased disruptive vocalizations). This study also showed that caregivers are using a high number of questions, specifically yes/no questions (64% of all questions) as previously reported by other studies (Dijkstra, Bourgeois, Petrie et al., 2002; Hopper,
2001; Small & Perry, 2005; Toner et al., 2003). Additionally, the yes/no questions are more successful, as compared to open-ended questions or clarifications at decreasing disruptive vocalizations (75%). It is important to note that even though only 45% of the caregiver’s yes/no questions contained emotional references, 89% of these emotional yes/no questions were followed by a decrease in disruptive vocalizations.

Suggestions for Future Research

In a recent study Zientz et al. (2007) discuss the benefits of educating and training caregivers of individuals with Alzheimer’s disease. According to their study, currently caregivers are being educated in the areas of increased knowledge of Alzheimer’s disease and communication breakdowns, using successful communication strategies such as yes/no questions and memory books, and decreasing caregiver burden and quality of life issues by incorporating successful communication strategies. Further research should focus on the results of the present study in that caregivers using yes/no questions containing emotional references to past memories are more successful at decreasing disruptive vocalizations when interacting with individuals with dementia. It is recommended that further research focus on the benefits of training the caregivers to (1) increase the number of yes/no questions used when interacting with individuals in the later stages of dementia and (2) increase the use of past memories and emotionally referenced language to improve the individual with dementia’s ability to successfully participate in a communicative interaction. Increased use of yes/no questions with emotional references should assist in decreased disruptive vocalizations, increased social skills and quality of life of the individual with dementia, along with improving job satisfaction for the caregivers.
## APPENDIX A
### Resident Demographics

<table>
<thead>
<tr>
<th>Resident</th>
<th>Age</th>
<th>Gender</th>
<th>Race</th>
<th>Diagnosis/ Med. History</th>
<th>Current Medications</th>
<th>MMSE</th>
<th>GDS</th>
<th>Type of Disruptive Vocalizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>89</td>
<td>F</td>
<td>Cauc</td>
<td>Dementia/ Alzheimer’s</td>
<td>Aricept, Cozaar, Ferrous sulfate, Lasix Risperdal, Zoloft</td>
<td>4/30</td>
<td>Level 6: moderate/severe dementia</td>
<td>Repetitive questions</td>
</tr>
<tr>
<td>2</td>
<td>94</td>
<td>F</td>
<td>Cauc</td>
<td>Vascular Dementia/ Alzheimer’s Hx: CAD, Strokes, Hypertension Macular degeneration</td>
<td>Trazadone</td>
<td>7/30</td>
<td>Level 6: moderate/severe dementia</td>
<td>Repetitive questions</td>
</tr>
<tr>
<td>3</td>
<td>84</td>
<td>F</td>
<td>Cauc</td>
<td>Dementia/ Alzheimer’s Hx: anemia, colitis, chronic back degeneration</td>
<td>Hyrocodone (pain) Mirtazapine (depression) Zyprexza (agitation) Trazadone (pm)</td>
<td>8/30</td>
<td>Level 6: moderate/severe dementia</td>
<td>Verbal anger/ crying/need for attention</td>
</tr>
<tr>
<td>7</td>
<td>96</td>
<td>F</td>
<td>Cauc</td>
<td>Dementia/confusion Hypothyroidism Hypertension Anemia/neoplasm’s of digestive system Cardiomegaly</td>
<td>Remeron (anxiety) Haldol PRN (outbursts)</td>
<td>8/30</td>
<td>Level 6: moderate/severe dementia</td>
<td>Negative statements, Persistent anger, Repetitive complaints</td>
</tr>
<tr>
<td>8</td>
<td>85</td>
<td>F</td>
<td>Cauc</td>
<td>Dementia/ Alzheimer’s COPD Hypothyroidism</td>
<td>Lexapro (depression) Remeron (anxiety) Haldol PRN (outbursts)</td>
<td>5/30</td>
<td>Level 6: moderate/severe dementia</td>
<td>Verbally abusive, yells.</td>
</tr>
<tr>
<td>No.</td>
<td>Age</td>
<td>Gender</td>
<td>Ethnicity</td>
<td>Conditions</td>
<td>Medications</td>
<td>Date</td>
<td>Level</td>
<td>Notes</td>
</tr>
<tr>
<td>-----</td>
<td>-----</td>
<td>--------</td>
<td>-----------</td>
<td>------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>------</td>
<td>-------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>9</td>
<td>81</td>
<td>F</td>
<td>Cauc</td>
<td>Hypertension, Peripheral vascular disease, Dementia/Alzheimer's, Anemia, Depression, Hypertension, Osteoporosis</td>
<td>Abrorent Nebs (COPD), Singulair (asthma), Norvasc, Coumadin</td>
<td>12/30</td>
<td>Level 6: moderate severe dementia</td>
<td>Repetitive request for help.</td>
</tr>
<tr>
<td>10</td>
<td>97</td>
<td>F</td>
<td>Cauc</td>
<td>Brain syndrome/pre-senile brain, Panic disorder, Depression, Hypertension, Chronic airway obstruction</td>
<td>Celexa/citalopram (depression), Mirtazapine (depression), Flovent inhaler (COPD), Tylenol TID (pain)</td>
<td>14/30</td>
<td>Level 6: moderate severe dementia</td>
<td>Repetitive requests for help. Yelling</td>
</tr>
</tbody>
</table>
APPENDIX B

Caregiver Demographics

Please provide the following information.


2. Gender:  male  female

3. Ethnicity:  Caucasian  African American  Latino/Hispanic  Native American  Asian  Other________

4. Educational level:  High School student (grade): _____  High School/GED  Some college  BA/BS  MA/MS  Other________

5. Employment Status/Job title:

6. Years of experience in position:

7. Years of experience in this setting:

8. Training in dementia care:
   
   Where:  When:

   Describe:
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Ethnicity: Cauc = Caucasian, AfAm = African American, & Other.
Education: HS = High School/GED, SC = some college/2 year degree, BA = BA/BS.
Employment/Job title: NA = Nursing Assistant, LPN = Licensed Practical Nurse, TR = Therapeutic Recreation, Coord = Unit Coordinator, HK = Housekeeping.
Years in position = number of years working in present position.
Years in setting = number of years working in this facility.
Years of training in dementia care: 1 = little or none, 3 = approximately 3 hours, 6 = 6 hours or more.
APPENDIX D

Resident Behavior Rating Scale

1. Level of disruptiveness *prior* to interaction (1 = out of control and 10 = stopped disruptive vocalizations)

   Out of control vocalizations

   1 2 3 4 5 6 7 8 9 10 Stopped

2. Level of disruptiveness *following* an interaction (1 = out of control and 10 = stopped disruptive vocalizations)

   Out of control vocalizations

   1 2 3 4 5 6 7 8 9 10 Stopped

3. Caregiver time required by the resident (1 = excessively more than non-disruptive clients and 10 = same amount as other residents in the unit)

   Excessive 1 2 3 4 5 6 7 8 9 10 Same

4. Manageability of the resident (1 = not able to manage and 10 = no difficulty in management)

   Not manageable

   1 2 3 4 5 6 7 8 9 10 No difficulty

5. Enjoyment of the communicative interaction (1 = absolutely none and 10 = same as other residents in the unit)

   No other enjoyment

   1 2 3 4 5 6 7 8 9 10 Same as residents
APPENDIX E

Open-ended Interview with Caregivers of Dementia Residents

1. Identify the type of disruption used by the resident:
   inappropriate verbalizations, loud talk, loud singing, cursing,
   disruptive talk, chatting, mumbling, yelling, groaning, howling or
   sighing,
   other ______________

2. In your opinion, what causes the resident to attempt communicating in the
   manner that you indicated in the question above?

3. How do you respond to the resident following their attempt to
   communicate? Please try to give some examples.

4. Do you try using any special words, sentences, or actions?
   If so, please try to provide examples.

5. Do you feel that certain words, sentences or actions are more successful
   than other types of interactions when you are working with the disruptive
   resident?

6. Do you have any expectations or ideas of how the resident will respond to
   you?
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Averages: 7.125, 6.95, 6.725
APPENDIX G.1
Consent Form for Legally Authorized Representatives of Long-Term Care Facility Residents with Dementia

A Study of Interaction Styles used by Individuals with Dementia and their Caregivers

The long-term care facility dementia resident for which you are the Legally Authorized Representative is invited to participate in a research study being done by Cynthia Lofton under the supervision of her advisor, Dr. John Madden, of the University of North Dakota Communication Sciences and Disorders Department.

Dementia denies an individual the ability to effectively communicate their medical, physical and emotional needs. As a result, individuals with dementia may attempt communication through inappropriate behavior often involving disruptive vocalizations (i.e., repetitive questioning and shouting), especially during the later stages of the disease. Employees in long-term care facilities are challenged to determine what the individual with dementia is attempting to communicate through their disruptive behaviors and further, how the caregivers can best increase the communicative success of these individuals.

The purpose of this study is to determine if the caregiver's style of interaction with the dementia resident affects the incidence of disruptive vocalizations and feelings of communicative success. To do this, caregiver interactions and the resident’s responsive behavior will be analyzed.

A medical chart review will determine if the long-term care resident is appropriate for the study in that they have been medically classified in the moderate-to-late stages of Alzheimer’s disease and exhibit vocally disruptive characteristics. Dementia residents selected for the study, and their caregivers, will be observed for one-hour sessions on two different days within the long-term care facility where the dementia resident typically spends their time. The one-hour sessions will be audio taped for later transcription and data analysis. Notes, hand-written during the observation, will be used for descriptive analysis of the interaction. Additionally, the caregivers will be interviewed and will complete a rating scale designed to determine their impressions of the success or failure of the interactions during the observed sessions.

The findings of the study will be shared with the families, legally authorized representatives, and the caregivers. The hope is that the study will identify strategies for improving communication between individuals with dementia and their caregivers.

Possible risks from this study may include family members and legally authorized representatives of the dementia residents being concerned about the confidentiality of the study and worrying that potentially embarrassing information about the resident’s behaviors may be revealed. Also, the residents may become apprehensive or agitated because of the presence of the observer within their daily setting.
To protect confidentiality, the names of the residents and caregivers will be coded in the data. That is, each name will be assigned a code number, and that code number will be used in identifying the data. No names or identifying information will be used in any publications that may result from the study. Additionally, to decrease the chance of resident apprehension or agitation, the principal investigator will interact with the resident to "gain their trust" prior to the one-hour observations.

Any information from this study that can be identified with the resident or their caregiver will remain confidential and will be disclosed only with your permission. All data and consent forms will be kept in separate locked cabinets for a minimum of 3 years after the completion of this study. Only the researcher, the adviser, and people who audit IRB procedures will have access to the data. After 3 years, the data will be shredded and the audiotapes erased.

Residents and/or their legally authorized representatives are free to decide not to participate or to withdraw at any time from the project without prejudice. Participation is voluntary, and the decision whether to participate will not change the resident’s future relations with the researcher, the long-term care facility, or department of Communication Sciences and Disorders at the University of North Dakota.

If you have questions about the research, you may call Cynthia Lofton at 320-980-6951 or Dr. John Madden at 701-777-3728. If you have any other questions or concerns, please call the University of North Dakota Research Development and Compliance office at 701-777-4279.

You will be given a copy of this consent form for future reference.

All of my questions have been answered and I have been encouraged to ask any questions that I may have concerning this study in the future.

__________________________
Participant’s Name

__________________________
Legally Authorized Representative’s Signature

__________________________
Date
APPENDIX G.2
Consent Form for Caregivers

A Study of Communication Styles used by Individuals with Dementia and their Caregivers

You are invited to take part in a research study being done by Cynthia Lofton under the supervision of her advisor, Dr. John Madden, of the University of North Dakota Communication Sciences and Disorders Department.

Dementia denies an individual the ability to tell people about their medical, physical and emotional needs. Individuals with dementia may attempt to communicate through behavior that often includes yelling and shouting, especially during the later stages of the disease. Caregivers in long-term care facilities often have a hard time knowing what the residents with dementia are attempting to say and how they can best help the residents communicate.

The purpose of this study is to find out if the way the caregiver communicates with the dementia resident affects the way that the resident attempts to communicate, and possibly to improve communication with the residents.

Dementia residents and their caregivers will be observed for one-hour sessions on two different days within the long-term care facility where the dementia resident lives. The observation sessions will be tape recorded. Also, the researcher will take notes during the observation sessions. Additionally, the caregivers will be interviewed and will complete some questions about how successful they were in communicating with the resident during the observation sessions. Caregivers also will be asked to fill out a questionnaire that asks for their age, gender, educational level, training in dementia care, and ethnic group.

Any methods for improving communication between residents and their caregivers that results from the study will be shared with the families, legally authorized representatives, and the caregivers.

Possible risks from this study to the caregivers may include feeling threatened that the data will reveal information about how well they do their job. To protect the privacy of all participants, the names of the residents and caregivers will be coded in the data (the tapes, notes, etc.). That is, each name will be assigned a code number, and that code number will be used in identifying the data. No names or identifying information will be used in any publications that may result from the study.

The data and consent forms will be kept in separate locked cabinets for a minimum of 3 years after the study is over. Only the researcher, her adviser, and people who check up on IRB procedures will have access to the data. After 3 years, the data will be shredded and the audiotapes erased.
Participation is completely voluntary. Caregivers are free to decide not to participate or to withdraw at any time from the project. A decision not to participate will have no effect on the caregiver's future relations with the researcher, the long-term care facility, or department of Communication Sciences and Disorders at the University of North Dakota.

If you have questions about the research, you may call Cynthia Lofton at 320-980-6951 or Dr. John Madden at 701-777-3728. If you have any other questions or concerns, please call the University of North Dakota Research Development and Compliance office at 701-777-4279.

You will be given a copy of this consent form for future reference.

All of my questions have been answered and I have been encouraged to ask any questions that I may have concerning this study in the future.

Participants Signature
APPENDIX H
Global Deterioration Scale (Reisberg, 1983)

NAME: ___________________________ ID#: _______________ DATE: __/__/____ PERIOD: __________

GLOBAL DETERIORATION SCALE (GDS)
(Choose the most appropriate global stage based upon cognition and function, and CHECK ONLY ONE.)

G 1. No subjective complaints of memory deficit. No memory deficit evident on clinical interview.

G 2. Subjective complaints of memory deficit, most frequently in following areas:
   (a) forgetting where one has placed familiar objects;
   (b) forgetting names one formerly knew well.
   No objective evidence of memory deficit on clinical interview.
   No objective deficit in employment or social situations.
   Appropriate concern with respect to symptomatology.

G 3. Earliest clear-cut deficits.
   Manifestations in more than one of the following areas:
   (a) patient may have gotten lost when travelling to an unfamiliar location.
   (b) co-workers become aware of patient's relatively poor performance.
   (c) word and/or name finding deficit become evident to intimates.
   (d) patient may read a passage or book and retain relatively little material.
   (e) patient may demonstrate decreased facility remembering names upon introduction to new people.
   (f) patient may have lost or misplaced an object of value.
   (g) concentration deficit may be evident on clinical testing.
   Objective evidence of memory deficit obtained only with an intensive interview.
   Decreased performance in demanding employment and social settings.
   Denial begins to become manifest in patient.
   Mild to moderate anxiety frequently accompanies symptoms.

   Deficit manifest in following areas:
   (a) decreased knowledge of current and recent events.
   (b) may exhibit some deficit in memory of one's personal history.
   (c) concentration deficit elicited on serial subtractions.
   (d) decreased ability to travel, handle finances, etc.
   Frequently no deficit in following areas:
   (a) orientation to time and place.
   (b) recognition of familiar persons and faces.
   (c) ability to travel to familiar locations.
   Inability to perform complex tasks.
   Denial is dominant defense mechanism.
   Flattening of affect and withdrawal from challenging situations.

G 5. Patient can no longer survive without some assistance.
   Patient is unable during interview to recall a major relevant aspect of their current life, e.g.:
   (a) their address or telephone number of many years.
   (b) the names of close members of their family (such as grandchildren).
   (c) the name of the high school or college from which they graduated.
   Frequently some disorientation to time (date, day of the week, season, etc.) or to place.
   An educated person may have difficulty counting back from 40 by 4s or from 20 by 2s.
   Persons at this stage retain knowledge of many major facts regarding themselves and others.
   They invariably know their own names and generally know their spouse's and children's names.
   They require no assistance with toileting or eating, but may have difficulty choosing the proper clothing to wear.
May occasionally forget the name of the spouse upon whom they are entirely dependent for survival.

Will be **largely unaware of all recent events and experiences in their lives.**

Retain some knowledge of their surroundings; the year, the season, etc.

May have difficulty counting by 1s from 10, both backward and sometimes forward.

**Will require some assistance with activities of daily living:**

(a) may become incontinent.

(b) will require travel assistance but occasionally will be able to travel to familiar locations.

Diurnal rhythm frequently disturbed.

Almost always recall their own name.

Frequently continue to be able to distinguish familiar from unfamiliar persons in their environment.

Personality and emotional changes occur. These are quite variable and include:

(a) delusional behavior, e.g., patients may accuse their spouse of being an imposter; may talk to imaginary figures in the environment, or to their own reflection in the mirror.

(b) obsessive symptoms, e.g., person may continually repeat simple cleaning activities.

(c) anxiety symptoms, agitation, and even previously non-existent violent behavior may occur.

(d) cognitive abulia, e.g., loss of willpower because an individual cannot carry a thought long enough to determine a purposeful course of action.

**All verbal abilities are lost over the course of this stage.**

Early in this stage words and phrases are spoken but speech is very circumscribed.

Later there is no speech at all - only grunting.

Incontinent; requires assistance toileting and feeding.

**Basic psychomotor skills (e.g. ability to walk) are lost with the progression of this stage.**

The brain appears to no longer be able to tell the body what to do.

Generalized and cortical neurologic signs and symptoms are frequently present.


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APPENDIX I
Caregiver Demographics and Percent of Decrease in Disruptive Vocalizations (DV)
According to Caregiver

<table>
<thead>
<tr>
<th>Caregiver</th>
<th>Age range</th>
<th>Gender</th>
<th>Ethnicity</th>
<th>Education</th>
<th>Employment</th>
<th>Experience</th>
<th>Training</th>
<th>% decrease in DV for all types of questions</th>
<th>% decrease in DV for yes/no emotional questions</th>
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Ethnicity: Cauc = Caucasian, AfAm = African American, & Other.

Education: HS = High School/GED, SC = some college/2 year degree, BA = BA/BS.

Employment: NA = Nursing Assistant, LPN = Licensed Practical Nurse, TR = Therapeutic Recreation, Coord = Unit Coordinator, HK = Housekeeping.

Experience = number of years working in present position.

Training in dementia care: 1 = little or none, 3 = approximately 3 hours, 6 = approximately 6 hours.

nd: no data
REFERENCES


Bourgeois, M. S. (2002). Where is my wife and when am I going home? The challenge of communicating with persons with dementia. *Alzheimer's Care Quarterly*, 3(2), 132-144.


