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Effectiveness of Individualizing Interventions Informed By the Hierarchic Dementia Scale (Hds), Used By Nursing Staff, To Reduce Aggressive Behaviors In an Individual With Alzheimer's Disease

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EFFECTIVENESS OF INDIVIDUALIZING INTERVENTIONS INFORMED BY THE

HIERARCHIC DEMENTIA SCALE (HDS), USED BY NURSING STAFF, TO REDUCE

AGGRESSIVE BEHAVIORS IN AN INDIVIDUAL WITH ALZHEIMER'S DISEASE

By

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ABSTRACT

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Alzheimer's disease (AD) is the most common form of dementia, representing 60 percent of all cases, and is described as a chronic, progressive, degenerative cognitive disorder. With loss of independence due to cognitive impairment, AD patients become more confused and anxious, which leads to a higher incidence of aggression towards nursing staff. It is paramount that the nursing community seeks new evidence-based healthcare innovations to reduce aggression and to protect caregivers. The aim of this study was to determine the effectiveness of individualizing interventions informed by the Hierarchic Dementia Scale (HDS) to reduce aggressive behaviors in people with Alzheimer's disease.

This thesis project is a case study that was conducted in a nursing home in South Mississippi in collaboration with LPNs & CNAs who worked on the Alzheimer's unit. The participant was diagnosed with AD and displayed aggressive behavior. Aggressive episodes were recorded on observation sheets developed by the Principal Investigator (PI). Once the baseline data were established, the PI administered the HDS tool to the participant. Using scores from the HDS, and the accompanying implementation manual, the PI developed interventions

tailored to the participant. Observations were repeated with the interventions in place.

Baseline trends showed that aggressive episodes only occurred in the bathroom and shower room; therefore, interventions were heavily implemented in these areas. Results revealed that aggressive behavior was reduced by 28.6 percent. Aggressive episodes increased in number, but decreased in intensity. Staff also claimed that the participant was 'much calmer' and 'the interventions made a huge improvement on her behavior.'

The small sample size and time constraints were limitations to this study. Longitudinal studies with larger samples may improve our ability to generalize the findings and to further validate the HDS tool's success in developing interventions to manage aggression in AD patients. The results of this study, however, suggest that the HDS appears to be helpful in developing interventions that reduce aggressive behaviors in AD patients, thereby contributing to safer environments for both clients and caregivers.

Keywords: Alzheimer's Disease, aggression, interventions, Hierarchic Dementia Scale

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Chapter I

Purpose of the Study

Dementia is a complex, degenerative disease process, and subsequently its complexity makes planning interventions challenging. Alzheimer's disease (AD) is the most common form of the umbrella term "dementia," representing 60 percent of all dementia cases, and is described as a "chronic, progressive, degenerative cognitive disorder" (Venes, 2009). The disease progresses throughout three stages (early, middle and late), in which the individual experiences distinctive cognitive decline and requires increasing amounts of daily assistance from caregivers. Cole and Dastoor (1996) suggest that this cognitive decline is the reversal of Piaget's stages of cognitive development theory. Piaget's theory asserts that human development entails progressing through "levels" of cognitive functioning. In Alzheimer's patients, functioning will regress through the same development levels. For example, demented patients will lose their ability to form sentences before losing the ability to form single words.

As the disease progresses, family caregivers eventually need the help of trained health care professionals. In most cases, the inability of the family to care for the individual leads to an admission to a long-term nursing care facility or nursing home. In a nursing home, certified nursing assistants (CNAs) make up the majority of the work staff. Registered nurses also play a dominant role in care giving by performing assessments, completing documentation, administering medications, changing dressings, and inserting IVs—skills that CNAs are not qualified to perform. Furthermore, registered nurses are responsible for supervising and directing staff as well as delegating appropriate care measures (Potter & Perry, 2009). Essentially, they manage and coordinate all patient care. Along with this, nursing staff are responsible for intervening with residents who exhibit aggressive behavior.

Aggression

With progressive loss of independence due to cognitive impairment, most Alzheimer's patients will become more confused and anxious, which, in most cases, will lead to displays of aggression. This aggression is generally targeted towards the nursing assistants in the nursing care facility simply because they spend more time performing daily tasks with dementia patients. If not managed effectively, patients' aggression may intensify and lead to assaults on caregivers. Janocha and Smith (2010) reported to the Bureau of Labor Statistics that "60 percent of all nonfatal assaults and violent acts by persons [between 2003-2007] occurred in the health care and social assistance industry, but nearly three-quarters of these were assaults by health care patients or residents of a health care facility. The most common victims of assaults in 2007 were nursing aides, orderlies, and attendants" (para. 8). In addition, impromptu conversations with nursing assistants by this author (Principal Investigator) suggest that frequent assaults involved physical aggression such as hitting, pushing, scratching, biting, more so than verbal or sexual aggression. Janocha and Smith's investigation (2010) and the impromptu personal accounts from health care workers solicited by the Principal Investigator (PI), suggest that effectively tailored interventions to reduce the rate of combative behavior in people with Alzheimer's disease is desirable and stands to improve the quality of life for patients living in a nursing home. Along with a reduction in the rate of combative behavior and improvement in patient quality of life, tailored interventions will, thus, provide for a safer work environment for all staff involved, which is a key concern in any health care facility.

Hierarchic Dementia Scale

Although many facilities and researchers use a variety of tools and scales to determine levels of cognition, one tool, the Hierarchic Dementia Scale (HDS), has been utilized sparsely

(Robert et al., 2010). The Hierarchic Dementia Scale was developed by Cole and Dastoor in 1987 in an attempt to create a scale that produced more valid and reliable results than existing scales. Cole and Dastoor state that most tools in use only test a few range-of-cognitive-function dimensions, are only capable of testing early stages of dementia, or are not reliable or consistent (Cole & Dastoor, 1987, 1996). Using trial and error in a 48-month longitudinal study, Cole and Dastoor were able to create a scale that effectively measures the hierarchical decline in cognitive functioning associated with dementia, supporting the idea of a reversal of Piagetian stages of cognitive development. The scale compared demented patients with cognitively intact persons to establish an instrument that produced valid and reliable results. It is intended to quickly reveal the participant's functional strengths and weaknesses; the resulting assessment provides a basis for the development of individualized interventions to maximize the resident's strengths and reduce problem behaviors related to functional impairment. An example of a problem behavior is aggression.

Cohen-Mansfield et al. (2010) suggest that being able to develop and use individualized interventions is a key factor with Alzheimer's patients because each AD patient has different strengths and weaknesses, just like with any other chronic illness, and will respond better to tailored interventions. Although it had been previously used on a large sample of participants (Cole & Dastoor, 1996), the Hierarchic Dementia Scale proved beneficial in helping occupational therapists develop tailored interventions involving a single participant (Paterson, Hamilton, & Grant, 2000). Paterson, Hamilton, and Grant's study emphasizes the importance of individualizing an intervention for persons with Alzheimer's disease to maximize results (2000).

Although the scale has produced positive results, no nursing studies were located that utilized the Hierarchic Dementia Scale using the university's library search engines (EBSCO

host and CINAHL-full text). Until now, the scale has been used by researchers and occupational

therapists in countries other than the United States. While occupational therapists have been

trained to use this tool, the use of the HDS has applicability to nursing because both nurses and

CNAs are situated and/or qualified to assess the resident and develop interventions based on the

findings of the scale. Nurses and/or certified nursing assistants working with the patients daily

generally have a thorough understanding of the patient's background and personal preferences.

This background knowledge and understanding, along with daily assessments and the use of the

HDS can contribute to creating more efficient interventions.

Nursing Process

The American Nurses Association (ANA) states that as health care providers, nurses have

a responsibility to provide quality patient care (2010). In order to provide standardized quality of

care, nurses follow a six-step process to make clinical decisions in the patient's best interest.

The nursing process involves the following steps: assessment, nursing diagnosis, outcome

identification, planning, implementation, and evaluation. As described by the American Nurses

Association, each step in this process is constantly being analyzed and revised so that once the

plan is evaluated, the process begins again (2010). The nursing process is considered a

"blueprint" of client care and remains flexible. It demands that nurses think critically and, at

some times, creatively, in order to provide the highest quality care.

In the assessment step, nurses collect information from the patient or a trusted secondary

source such as a family member to organize a comprehensive knowledge base, as well as

critically analyze the findings to develop one or several nursing diagnoses, depending on the

circumstance. Nurses are expected to prioritize care according to the patient's current condition

(American Nurses Association, p. 32). Unlike medical diagnoses, nursing diagnoses do not

identify a disease process; a nursing diagnosis is a "statement that describes the client's actual or potential response to a health problem that the nurse is licensed and competent to treat." (Potter & Perry, p. 250) For example, it can include a statement such as "impaired memory," instead of "Dementia" (p. 250). Once a diagnosis is made, the nurse and patient and/or family member may begin to identify outcomes and plan realistic goals. In the next phase, once goals are developed, the nursing staff will develop and implement individualized interventions.   Rogers (1970), a nurse theorist, takes this concept one step further by stating, "nursing is directed toward…evaluating [data of nursing diagnosis], determining immediate and long-range health goals for the individual…and initiating intervention that seems most likely to achieve these goals" (p. 125). The final step is the evaluation stage. In the evaluation stage, nursing staff will continuously monitor progress and adjust goals and interventions accordingly (American Nurses Association, p. 45). Rogers (1970) also agrees in that "the dynamic nature of life signifies continuous revision of interventional measures" (p. 125). Each step in the nursing process requires familiarity with or an understanding of evidence-based nursing practice.

Evidence-Based Practice

Rogers (1970) emphasizes that scientific nursing knowledge is the foundation for nursing practice. Furthermore, Rogers suggests that nursing knowledge is not just specific to nurses, and it can be used in a variety of settings. However, Rogers also expresses the need of this scientific body of nursing knowledge to not only be integrated into nursing practice, but also into appropriate instructional programs (1970). According to Masters (2009), evidence-based practice is not merely research utilization or quality improvement. Masters states that evidence-based practice utilizes clinical experience and judgment along with current research support (2009). Although highly suggested, Masters argues that many nurses are not required by their

facilities to actively participate in research. However, at minimum, nurses should be familiar with current research and be able to translate significant findings into practice. Again, these interventions are patient-centered; in other words, they are specifically tailored to that patient for that set of conditions. Like fingerprints, no two nursing plans or interventions for a patient are the same. Planning is a crucial aspect of nursing and patient care, and tailoring interventions in any case, including in Alzheimer's related problem behaviors such as aggression, is a priority for quality healthcare and better patient outcomes. For example, understanding that music has a physiological effect on clients will enable the nurse to incorporate it into the care plan of a client exhibiting aggressive behavior.

Theoretical Framework

Cole and Dastoor's Hierarchic Dementia Scale was developed to maximize a patient's strengths while minimizing his/her weaknesses, and may be understood from a nursing perspective using Martha Rogers' theory of nursing, the Science of the Unitary Human Beings (Rogers, 1970). Rogers suggests that the purpose of nursing is "to help the individual achieve his/her maximum well-being through the use of scientific knowledge and the art of nursing," as well as "empowering the individual or community in its growth potential" (Tourville & Ingalls, 2003, p. 30). A concept that Rogers (1970) focuses on is the idea that man and the environment are constantly intertwined and equally affecting each other through interactions. The continuous exchange of information between man and the environment is one of Rogers' theory assumptions. There can be no man without an environment and no environment without man. Furthermore, these "man-environment transactions" form patterns, and these patterns are repetitious. In other words, individual's environment can determine certain patterns that the individual may adopt, and external events will either increase or decrease the individual's

patterns (p. 53). Along with patterning, Rogers (1970) also includes organization as a key concept of understanding man as a whole, including his growth and behavior. In addition, it is this concept of patterns and organization that allows nurses to see and understand the individual's unique identity.

Again, Rogers (1970) establishes that nursing is a "humanistic" science that "…is aimed to assist people in achieving their maximum health potential (p. 86-87). This is ultimately achieved through appropriate nursing goals, as well as keeping in mind the individual's own identity. Meeting these goals can be accomplished in a variety of ways with the needs of the individual as the primary focus. In summary, Rogers suggests that "professional practice in nursing seeks to promote symphonic interaction between man and environment, to strengthen the coherence and integrity of the human field, and to direct and redirect patterning of the human and environmental fields for realization of maximum health potential" (p. 122).

Other principles developed by Rogers (1970) are of particular importance with regards to this study as well. The principle of helicy is directed towards positive health. Nurses are intended to be the help an individual needs to achieve this. Goal setting is a concept discussed within the principle helicy as it allows for structure and direction that enables individuals to achieve positive health. Again, goals should remain flexible because they depend on man's unique and changing identity and needs. Goals should also be continuously reevaluated to ensure that they are in harmony with the re-patterning associated with man-environment transactions. Re-patterning can also be stimulated through activities of daily living, providing multiple opportunities for nurses to help individuals achieve their goals of positive health.

The principle of resonancy is also important to this study because it directly focuses on the intervention processes. Rogers (1970) suggests that the man-environment relationship is so

complex, and man's development can either be improved or interrupted by specific patterning. Therefore, "enhancement requires that there be intervention[s] that will strengthen the man-environment relationship" (p. 123). As implied, the man-environment relationship is crucial to man's achievement of positive and/or maximum health, and it is the nurse's responsibility to facilitate this enhancement alongside the individual as an active participant. Along with Rogers' (1970) key concept of maximizing health potential and/or strengths, it is her idea that "nursing practice must be flexible and creative, individualized and socially oriented, compassionate and skillful" that this study uses as its framework.

The focus of this study is the development of interventions for a demented, aggressive nursing home patient using Cole and Dastoor's Hierarchic Dementia Scale. Because the Hierarchic Dementia Scale has not been used to develop nursing interventions, this study is unique and stands to advance nursing knowledge by creating a more focused approach to reduce aggressive behavior.

Assumptions

The assumptions are:

1. Dementia can be adequately measured.

2. Aggressive behavior can be reduced.

Research Question

The research question is:

1. What is the effectiveness of individualizing interventions informed by the Hierarchic Dementia Scale (HDS), used by nursing staff, to reduce aggressive behavior in an individual with Alzheimer's disease?

Chapter II

Literature Review

The purpose of this study is to determine the effectiveness of individualizing interventions informed by the Hierarchic Dementia Scale, used by nursing staff, to reduce aggressive behavior in people with Alzheimer's disease. This review was conducted using The University of Southern Mississippi's online library catalog including EBSCO host and CINAHL-full text search engines.

Alzheimer's Disease

Again, Alzheimer's disease is the most common form of the umbrella term "dementia," representing 60 percent of all cases, and is described as a "chronic, progressive, degenerative cognitive disorder" (Venes, 2009). Scholars further define the disease as progressive and deteriorating, impairing cognitive functioning (Keady & Jones, 2010; Miller & Butin, 2000; and Robert et al., 2010), as well as changing in "severity and complexity over time" (Keady & Jones, 2010; and Holtzer et al., 2003). As previously mentioned, the process of the disease is classified as early, middle and late; however, these stages can also be associated with the severity of the disease, and, therefore, be further classified as mild, moderate and severe. Each stage is marked by distinctive cognitive decline and progressive inability to care for one's self, requiring assistance from caregivers.

Mild dementia is described as a decline in the ability to perform activities of daily living (ADLs), but does not yet result in a dependency on others. Moderate dementia is defined as a continuous decline in which the person is dependent and can only complete simple chores such as sweeping, brushing his/her teeth and hair, and following one-step commands (i.e. 'throw your trash here', 'hold this glass', 'open the door', etc.). Severe dementia is represented by 'an

absence of intelligible ideation' (Keady & Jones, 2010). This individual would not be able to complete any ADLs such as bathing, dressing, grooming, eating, and would need full assistance from a caregiver to complete such tasks. If not in the moderate stage, AD patients will definitely lose bladder and bowel continence in the severe stage. Like the reversal of Piagetian stages of cognitive development (Cole and Dastoor, 1996), the individual will generally lose bladder continence before bowel continence. This is because children typically recognize the urge of a bowel movement and react to this urge appropriately before they have complete control of their bladder. So in reverse, bladder continence will be lost first.

Cohen-Mansfield et al., (2010) found that with the loss of independence due to cognitive impairment, most Alzheimer's patients will become more confused and anxious, which, in most cases, will lead to some display of aggressive behavior. Other researchers (Cole & Dastoor, 1987, 1996; Keady & Jones, 2010; Miller & Butin, 2000; Paterson et al., 2000) have made similar observations. These behaviors become more difficult to manage as the disease process continues. Behaviors include but are not limited to agitation, wandering and aggression (physical, verbal, and sexual). All are generally linked to the progressive cognitive decline (Cohen-Mansfield et al., 2010; Holtzer et al.*,* 2003; Keady & Jones, 2010; Leonard et al., 2006; Paterson et al., 2000; Tak et al., 2010; Yuhas et al., 2006). However, other articles have stressed the increase in physical aggression among dementia patients and have investigated causes and related factors (Holtzer et al., 2003; Keady & Jones; Leonard et al., 2006; Oh, et al., 2004; Tak et al., 2010).

Aggression

Although other problem behaviors like wandering/pacing are prevalent, physical aggression is directly linked to dementia-related cognitive decline (Oh, Eom, & Kwon, 2004;

Leonard, Tinett, Allore, & Drickamer, 2006). This aggression is generally targeted towards the primary care nurses and nursing assistants in the nursing care facilities because they spend more time providing care for dementia patients. Tak et al., (2010) suggests that if not managed, the patient's aggression can intensify and, without any intentional provocation, result in an assault of the primary caregiver. As previously noted, Janocha and Smith (2010) reported that 60 percent of all nonfatal assaults and violent acts by individuals between 2003-2007 occurred in the health care industry, but almost three-quarters of these were assaults by patients or residents in a health care facility. The most common victims of assaults in 2007 were nursing assistants. In hopes of reducing this statistic, researchers have studied possible contributing factors associated with physical and verbal aggression to better understand the progression of these behaviors as well as to focus interventions that may decrease or ameliorate aggressive behavior.

Contributing Factors

Keady and Jones (2010) have investigated possible causes contributing to the rate of "behaviors that challenge" in AD patients. They focused on a needs-led model. These types of models focus on two types of information: "background information on the person's biography, physical health, personality, mental health status, and an in-depth description of the behaviors that challenge," by health care providers (p. 27). This information will essentially provide insight to help determine a patient's needs, and if they are being met or not. Cohen-Mansfield et al. (2010) also attribute agitated behaviors to unmet needs "related to boredom and confusion" (p. 1459).

In Keady and Jones' case study (2010), data were collected in personal interviews with the patient, close family members, and nursing staff. Nursing staff reported past occurrences of aggression, as well as completed daily behavioral charts to record frequency, location and time

of the aggressive behaviors. The team of family members and nursing staff completed a review of the behavioral charts, as well as determined unmet needs. From there, Keady and Jones developed possible "motives" as to why the patient was aggressive and why the aggression occurred at the time it did (2010). For example, the client in their study tended to become agitated and aggressive during morning hygiene tasks and at meal times. After a thorough review, staff realized that the patient's history of pain associated with osteoarthritis was a likely cause of (motive) morning agitation. Family also reported that the patient did not like loud music or crowds, and this was a likely cause of agitation during meal times that tended to be chaotic in this long-term care facility.

In agreement with Keady and Jones (2010), Egan et al. (2007) discuss the impact of life history knowledge in managing dementia-related problem behaviors such as aggression. The importance of life history is also mentioned by Rogers (1970) in that 'knowledge of life's distinctive characteristics is basic to understanding the multiple manifestations of human behavior' (p. 41). Egan et al. (2007) examined the frequency of aggression with the implementation of a life history assessment. In this study, the researchers asked close family members of four patients for a detailed life history of the patient. This included "birthplace, members of family of origin, where the individual grew up and most significant previous residence, present family, education, work experiences, significant past experiences, known traits and attributes, and life story" (Egan et al., 2007, p. 26). Life history information was placed in the patient's chart as well as in the patient's room so that involved staff would have access to the history at all times of care. However, one client's background contained intimate details and a history of trauma; therefore, only a partial life history was provided in the room while the full history was provided in the patient's chart.

Results showed that there was change in aggressive behavior in some patients, but not all. One patient's aggression remained constant with baseline data collection. Ten staff members were also interviewed, and all reported that they found reading the life history helpful. One staff responded that she "felt happy that they know more about the resident…It's a privilege to know more about [the resident]…She became more like a real person." (p. 28). Staff also reported that they gained a greater appreciation for the patient and began tending to the patient's needs in a more individualized manner with her history in mind. Egan et al., (2007) concluded that the "use of life history information appears to have the potential to increase quality of care for long-term care patients with aggressive behavior and to decrease aggression among some of these residents" (p. 30). This created a better atmosphere and calmer patient during direct care activities, according to the nursing staff. Although these studies provide data regarding personal background and/or life history and unmet needs, other researchers (Holtzer et al., 2003; Leonard et al., 2006) continue to focus on psychopathological factors, defined by Holtzer, et al., (2003) as primary contributing factors to problem behavior.

Holtzer et al. (2003) describes psychopathological features as elements of problem behaviors, related to cognitive function, that are a direct result of the disease process. They include "wandering/agitation, aggression, hallucinations and delusions" (p. 955). In this longitudinal 5-year study, wandering/agitation, aggression, hallucinations and delusions were studied in relation to a decline in cognitive function. These behaviors were observed over the course of the five year period to determine the frequency and/or intensity of the behaviors in relation to cognitive decline. No interventions were in place. Hallucinations plateaued quickly and delusion rates decreased compared to cognitive decline. Although wandering/agitation did increase, it was not persistent throughout the time period. Observed aggression, however,

persistently increased; there was also a dramatic increase in later years as a result of cognitive impairment. Other substantial findings from a general estimating equation used by the researchers determined that the odds of aggressive behavior between the moderate and severe stages of AD are a 9-fold increase (Holtzer, et al., 2003).

Leonard et al., (2006) suggest that the psychopathological features mentioned by Holtzer, et al. (2003), with the addition of depression and constipation, increase the risk for physical aggression. Researchers utilized a cross-sectional study to determine if these features are significantly related to physical aggression, and, if so, to what extent they are modifiable. Findings suggested that hallucinations and delusions correlated with cognitive decline (Leonard et al., 2006), but also influenced aggression itself, which was only considered a dependent feature of the cognitive decline previously discussed. Constipation showed equal correlation to aggression in comparison to hallucinations and delusions, and 'depression had the highest odds of physical aggression,' (Leonard et al., p. 1297, 2006). This study also notes that in the majority of cases, verbal and physical aggression go "hand-in-hand" (p. 1297). Leonard et al., (2006) further suggests that these features are modifiable and can be reduced through pharmacological and non-pharmacological means in order to also reduce aggressive behavior. Oh et al., (2004) also uses this cross-sectional approach; however, their study focuses on identifying non-modifiable features associated with aggression.

Consistent with other studies, Oh, et al., determined that aggression exhibited by aggressive patients is influenced by cognitive impairment when compared to non-aggressive patients (2004). This study also suggests that age and length-of-stay also affect aggression: the older the patient, the more aggressive; the longer the stay in a nursing facility, the more aggressive (Oh, et al. 2004). Similar to Leonard et al. (2006), this study determined consistency

between physical and verbal aggression. With roughly the same percentages (60 and 40, respectively), Oh et al. (2004) determined that physical and verbal aggression "co-occurred" (p. 1456). Considering these contributing factors and other features (modifiable and non-modifiable), it is within nursing's purview to intervene with the appropriate actions, supported by the nursing process and a broad range of evidence. Furthermore, as suggested by Leonard et al. (2006), it is best to use non-pharmacological interventions first, to manage problem behaviors such as aggression, and nurses are in the ideal position to provide such interventions.

Interventions

In the last few decades, research of tailored interventions has provided support for improving and redirecting the expertise of nursing care, providing better education and training in the management of aggressive behaviors. Cohen-Mansfield et al., (2010) suggests that using standardized stimuli such as musical tones, as well as "self identity" stimuli related to past life experiences such as the music of the individual's favorite musician/singer or bringing in an animal similar to his/her family pet, show significant reduction in agitated behavior such as aggression. Several other researchers (Cole & Dastoor, 1986, 1996; Keady & Jones, 2010; Paterson et al., 2000) show similar findings. Cohen-Mansfield et al., (2010) studied the effect of various types of stimuli, based on the level of cognition and past life experiences to provide a familiar environment in order to reduce agitated behavior. Researchers used live and simulated stimuli in order to "engage" the patients in familiar activities to meet unmet needs—similar to other studies (Keady & Jones, 2010). Once a self-identity questionnaire, informed by the patient and/or a close relative, was completed, an individualized intervention could be developed by the researchers using the various standardized stimuli. Findings also showed that stimuli were more effective for physical aggression than any other agitated behavior like pacing. Cohen-Mansfield,

et al., further suggests that physical aggression is a direct result of unmet needs such as boredom, which with active stimuli are "met" (2010). For example, if boredom is what is causing the aggressive outburst, give the individual something to do that may relate to past experiences (i.e. play Latin music if they previously enjoying dancing to Latin music or ask the individual to build something using blocks if he/she was an engineer or architect in the past). This study suggests that by meeting needs associated with boredom or under-stimulation, the occurrence of problem behaviors such as aggression will decrease.

To provide even more individualized results, other studies have narrowed their research using a case-study method (Keady & Jones, 2010; Paterson et al., 2000). While Paterson et al., (2000) focused on an agitated "wandering" behavior, Keady and Jones (2010) honed in on aggressive behavior. Both, however, produced similar results using an individualizing method. Keady and Jones (2010), using a simple strategy of collecting background information such as the patient's history of osteoarthritis and avoidance of large crowds and noise from the patient and family, identified precursors to causes of the problem behaviors and attempted to eliminate the causes before the patient had a chance to become agitated.

Paterson et al. (2000) used the Hierarchic Dementia Scale to map an intervention that would not only minimize the physical and cognitive weaknesses causing agitation, but also maximize patient strengths to improve overall well-being. Although Keady and Jones' longitudinal study (2010) did not use the HDS or describe specific results in the reduction of the aggressive behavior, Paterson et al. (2000) did conclude that within 4 weeks, the agitated wandering behavior was reduced by 40 percent using the HDS informed intervention and remained that way as long as the intervention was actively in place. These longitudinal studies allowed researchers to accurately determine the benefits of an individualized intervention with

one patient. With such positive results from individualizing interventions, the PI suggests that

the Hierarchic Dementia Scale can be used in research and clinical practice to provide a means of

evaluating the extent of an AD patient's cognitive impairment as well as establishing

interventions to reduce aggression and other problem behaviors.

Hierarchic Dementia Scale

Challenging current scales and research tools, Cole and Dastoor (1987) present a new

tool capable of tracking progression of dementia and cognitive function over time. They suggest

that the Hierarchic Dementia Scale is also sensitive to all stages of Alzheimer's (mild, moderate

and severe). Cole and Dastoor (1987) argue that tools considered reliable up until then "do not

allow for the ready fatigability, lack of motivation, and motor and sensory handicaps…only

measure a small number of mental functions… [and] measure early stages…but not later stages"

(p. 298). Relying on the reversal concept of Piaget's cognitive development theory, Cole and

Dastoor (1987) developed a tool to measure 20 specific functions crucial to providing an all-

inclusive individual intervention plan or group of interventions. The scale was designed so that

even the most demented person could respond in a way that produced results. For example, a

patient could score 2 points for scribbling on a sheet of paper, whereas a mildly demented patient

could possibly score the full 10 points by writing a paragraph free from errors. By comparison,

in the specific function area tested, higher scores are considered strengths as lower scores are

considered weaknesses. The purpose of this tool is to identify all areas of functioning and tailor

interventions so that strengths are maximized and weaknesses, resulting in aggressive behaviors,

are minimized.

Originally, this study was conducted with a sample of 50 demented patients over a period

of four years. Cole and Dastoor's longitudinal study demonstrated the progression of the disease

and cognitive function over time, as well as identified relationships between specific functions and the rate at which they decline. There were no interventions put in place throughout the study. The purpose of the study was merely to observe and evaluate the cognitive decline in specific areas using the HDS. For example, Cole and Dastoor (1987) determined that writing, drawing, calculation and motor skills declined in a constant fashion; whereas, reading and gnosis (word meaning) declined rapidly at first, then leveled off. Furthermore, Paterson et al. (2000) suggest that the Hierarchic Dementia Scale could be used to determine the efficacy of treatment informed by the scale as well as other tools. Cole and Dastoor (1996) further conceptualized their scale to validate their findings from the original 1987 study. They challenged the consistency of other tools, validated the use of their tool, as well as presented other tools' limitations in comparison to the Hierarchic Dementia Scale. Findings included an average of 10-12 percent decrease in HDS scores per year (Cole and Dastoor, 1987). This meant that when the participants completed the HDS each year, their average score decreased by 10-12 percent. Although Cole and Dastoor (1996) suggested from their longitudinal observational study that the scale could be used to create interventions for an individual exhibiting a problem behavior, it was not until Paterson et al.'s (2000) research that the effectiveness of using the HDS as a means of an intervention guide was studied.

Paterson et al. (2000) used this scale to evaluate the level of cognitive impairment, as well as identify strengths and weaknesses in one demented patient displaying agitated wandering behavior. This study used occupational therapists (OTs) to interpret the results from the scale and to develop tailored interventions to reduce the problem behavior (wandering). However, Miller and Butin (2000) point out that in clinical practice, a physician's order is necessary to provide occupational therapy (which can also become expensive); therefore, it is logical and

economically prudent to educate nurses about this scale so that it can become a part of everyday practice. Nurses may use the scale and develop the interventions without a physician's order at any additional cost to the facility other than purchasing the instrument.

Comparison of Scales with HDS

In an attempt to suggest a new "multi-domain" Alzheimer's scale, Robert et al. (2010) reviewed and evaluated 68 relevant scales. In addition, he suggested guidelines for this new multi-domain scale to be successful. Based on their evaluation, these researchers developed six characteristics that an ideal multi-domain scale should posses. The characteristics are:

(1) Easy and quick administration by an experienced clinician; (about 10 minutes administration time)

(2) Reliable and valid for AD

(3) Cover the AD relevant areas of cognition, activities of daily living, behavior, communication and social interaction, and quality of life

(4) Applicable to all AD severity stages (with minimal floor and ceiling effects)

(5) Useful for monitoring of disease progression in clinical practice

(6) Sensitive to measure therapy effects (p. 2).

The Hierarchic Dementia Scale is one of the 68 scales included in the study; however, the authors did not report their review in detail. Many other scales, however, were reported in detail and compared to the six characteristics listed above.

One of the scales reported in detail was the Mini-Mental State Examination (MMSE). The MMSE is a widely used Alzheimer's disease scale and is comprised of 11 questions to determine level of cognition. It is noted to be relatively quick, taking between 5 and 10 minutes to complete. Although it is quick, Robert et al. (2010) suggests the scale is said to have 'easy' items, and is therefore insensitive to mild and severe AD cases, also known as a ceiling effect.

Many other scales strictly measure activities of daily living (ADL) related to cognitive impairment. These tests are only sensitive to mild and moderate AD cases, neglecting severe cases since people with severe cognitive impairment can no longer perform ADLs, which is the focus of these scales.

Behavior scales generally assess what are referred to as "problem behaviors" such as agitation, depression, aggression and attempt to target one or more behaviors in particular. Many of these scales are intended to determine the severity of the behavior, but fail to connect this to cognitive functioning or change in behavior over time without the utilization of an additional scale or tool.

Robert et al. (2010) suggests in a literature review that there are many scales that accomplish a multitude of goals; however, the scales have limitations, and do not meet a multi-domain scale standard that encompass all factors such as ADLs, cognition, and behavior, which is the ultimate goal in the identification and treatment of AD and AD–related behaviors. Although not discussed, the Hierarchic Dementia Scale meets all of Robert et al.'s criteria identified for an ideal multi-domain scale. It is easy and quick, and may be completed in 15-30 minutes (Cole & Dastoor, 1987). It is reliable and has an interrater reliability score of 0.89, as well as internal consistency of 0.97. It covers all relevant areas of AD. It is applicable to all AD stages, resulting in no floor or ceiling effects (Cole & Dastoor, 1996). It enables the tracking of the progression of the disease process. Also, it is able to measure therapy effects as studied by Paterson, et al. (2000). Because this scale shows promise, nursing research is clearly indicated in order to provide intervention success and higher quality care and patient outcomes.

As the elderly population increases and the prevalence of the dementia in elderly patients increases, new interventions will be needed. It is clear that many scales lack a multi-domain

foundation; therefore, interventions informed by these scales lack the opportunity for success. Some scales take too long to administer, others cannot determine AD stage specificity, and few scales look at all relevant areas of AD progression (cognition, ADLs, behavior, etc.). The Hierarchic Dementia Scale is a multi-domain scale developed and utilized primarily by OTs that has been used sparsely in the United States. It has produced positive, lasting results by reducing the frequency of problem behaviors in individuals at any stage of AD. This study can serve as the foundation of dementia-related interventions and provide the nursing community with new knowledge to provide higher quality care.

Chapter III

Material and Methods

Sample

The sample staff met the following inclusion criteria:

1. Full-time licensed practical nurses (LPNs)

2. Full-time certified nursing assistants (CNAs)

3. Staff has worked on the AD unit for 6 or more months

The sample participant met the following inclusion criteria:

1. Pre-diagnosed with Alzheimer's disease

2. Displays and/or has displayed physically aggressive behavior

3. Has been a resident of this facility 6 months or longer

 For the purpose of this study, aggressive behavior is defined as a physically defensive

behavior resulting in the unintentional harm of others. This includes punching, biting,

scratching, pushing, slapping, pinching, and kicking. This is congruent with previous studies

(Cohen-Mansfield, et al., 2010; Oh, et al., 2004). This study will not include verbal or sexual

aggression. Through impromptu conversations with staff members at this nursing home facility

and current research findings, it was determined that verbal aggression does not pose a direct

threat to staff and other residents of the facility. Physical aggression, however, does pose a daily

threat to the overall safety of this facility. The principal investigator (PI) conducted informal

interviews with the LPNs and CNAs of the unit in order to identify a potential participant. Staff

described this patient as 'aggressive', "unpredictable', 'hard to manage', and 'a danger to the

unit residents'. Staff also reported this aggressive behavior as a distress and hazard to the staff

and the resident himself nearly every day of the week. Physically aggressive behavior will be

interchangeably used with "combative" behavior, another term commonly used by the staff in the nursing home facility. The PI, however, was not able to gain consent from the potential participant's charge family member or responsible party (RP). Again, relying on an informal interview with the LPNs and CNAs of the unit, a different participant was chosen that met the previously listed criteria. Similarly, this participant was described by the unit staff as 'paranoid', 'jumpy', 'combative with staff' and a 'high-injury risk patient' as a result of her combative behaviors. According to the LPNs, this participant was aggressive 'more days out of the week than not.'

Consent was obtained from this participant's charge family member or responsible party (RP) (see Appendix C). In this setting, only a responsible party was needed to consent. A responsible party is in charge of making any decisions for the participant. The RP may also be a power of attorney (POA), but does not have to be. For this facility, POA is used for families with multiple siblings/children and gives specific responsibility to select family members (i.e. medical responsibility, financial responsibility). However, the RP is always the first person of contact. If the request being made is specific to another family member's responsibility, the RP should refer the request to the intended power of attorney. The request for participation in a significant research study was, therefore, a request that the RP can approve.

Informed Consent

Informed consent was obtained first from the administrator of the nursing home care facility to conduct the study (see Appendix A). Following IRB approval obtained from The University of Southern Mississippi (see Appendix B), consent was also obtained from the staff to agree to be trained and participate throughout the length of the study (4 weeks) (see Appendix

C). Lastly, informed consent was attained from the charge family member of the participant (RP) (see Appendix D). The process, again, is as follows:

1. Consent from the organization

2. IRB approval

3. Consent from staff to participate and trained

4. Consent from the participant's responsible party (RP)

The PI obtained all consents (facility, staff, and participant's family member) following a thorough explanation of the study, its risk and benefits and their right to withdraw based on standard IRB protocol. The staff were also insured that refusal to participate would neither impact their position nor their job evaluation. Also, the PI assured that the facility's current intervention implementation policy would remain in place during observation periods. All consents obtained were through face-to-face interviews and signature consent.

Demographics

The patient demographics that were collected consisted of age, gender, ethnicity, medical diagnoses history, medication history and level of dementia based on the Mini-Mental State Examination (MMSE). The MMSE, the facility's current tool, is used by a clinical psychologist who evaluates the cognition and competency of long-term patients at monthly or yearly intervals, depending on patient status and care planning recommendations. Staff demographics included age, gender, ethnicity, level of education, work status (requirement of full-time), and work experience on the AD unit.

Design

This is a quasi-experimental case study, involving quantitative as well as qualitative elements. The design is based on a pre-intervention phase, tool administration and intervention

development, and an intervention phase. This design allowed the principal investigator (PI) to collect baseline information (pre-intervention), develop an intervention informed by the Hierarchic Dementia Scale tool, institute the intervention, and observe its effects (intervention phase). Since this design involves one collection of baseline data and one collection of intervention data, this was also considered an AB design. The PI did not choose to take the interventions away for validation purposes because it is unethical practice to remove or withhold any measure that is beneficial to the participant.

Setting

The study was conducted in an Alzheimer's unit within a nursing home care facility in South Mississippi that provides care for 15-20 residents within this one unit. The environment of the AD unit is secured using an electronic access code for entering and exiting and consists of a nurses' station at the entrance and a hallway, immediately following, to the main room. The shower room is located just past the nurses' station. Bedrooms are located on either side of the hallway with same sex roommates, with the exception of married couples (there were no married couples throughout the length of the study). In other words, female patients share a room with female patients and male patients share a room with male patients. The hallway leads into a large sitting room with a dining area and multiple windows looking into the back patio with a wooden fence enclosing the area around the grassy perimeters of the unit. The patio is also secured using an electronic access code. The dining room is to the far right of the sitting room. It has two long tables with dining chairs. A unisex bathroom that the patients were able to use without walking back to their rooms is in a far corner of the dining room.

The sitting room is composed of two large couches and multiple lounge chairs, a television with VCR and DVD, radio, a bookshelf filled with large print novels at a variety of

education and reading levels, as well as a large locked cabinet accessible by the activity aide. It contains various arts and crafts, puzzles and board games. Activities are also scheduled through the activity department that allow outside community members to entertain the residents on various days of the week. This includes, but is not limited to, local dance troupes, bands, churches, and bingo organizations.

Meals are served at 7:00 a.m., 12:00 p.m. and 5:00 p.m. with snacks and beverages at 9:30 a.m. and 2:30 p.m. Shower schedules included a Monday, Wednesday, Friday morning and evening schedule, as well as a Tuesday, Thursday, Saturday morning and evening schedule. The participant was scheduled to shower Tuesday, Thursday and Saturday mornings. One licensed practical nurse (LPN) as well as two certified nursing assistants (CNAs) are in the unit at all times. The director of nursing (DON), a registered nurse, is available in her office just outside the AD unit at all times.

Checklist

The operational definition of aggressive behavior was developed by the PI. The definition was described to the staff before the study began. It was not defined on the checklist itself; however, the PI was available during the entire observation process if there were any questions regarding physical aggression. The checklist is in table format with behaviors listed on the far left column and time of the day across the top in one-hour intervals. The sheets listed seven behaviors reflective of physical aggression. Each behavior was explained to the staff before the observational process began. Behaviors were recorded on the daily observational checklist forms. A daily observational check-list form was provided to every staff member at the start of each observation day or shift (7:00 a.m. and 2:00 p.m.). All forms were returned to the PI at the end of the shift (2:00 p.m.) or end of the observation day (7:00 p.m.). The

observation day typically ended at approximately 7:00 p.m.; however, this varied slightly and was dependent on when the participant went to sleep for the night. Baseline forms were titled "Checklist A" with the date below (week 1 and 2) and intervention forms were titled "Checklist B" (week 3 and 4), respectively. Also, separate forms were provided to each work shift (a.m. and p.m.) (see Appendix E & F). Essentially, the forms were the exact same form, only with a different title and date. This was done to make it easier to separate for data collection and analysis.

The combative behaviors were recorded as the number of instances (frequency) the behavior occurred within a 12-hour period. Observations were made by the PI, as well as the CNAs if the PI was not present during any part of the data collection times. To collect the most accurate data, the 12-hour time period was determined to be 7:00 a.m. - 7:00 p.m. based on the patient's waking hours. This overlapped into two work shifts (6 a.m.-2 p.m. and 2 p.m.-10 p.m.). Time intervals were arranged by the hour (i.e. 7:00-8:00 a.m., 8:00-9:00 a.m., etc). Data were collected five days a week: Monday-Friday. The PI was trained in observation methods and documentation techniques through Honors College required curriculum.

Data and Analysis

Initial baseline data of the participant were collected for two consecutive weeks. During this time, using the check-list observation sheet, the PI was looking for recurrent or repeating themes or behaviors, as well as collecting the basic baseline data. The 12-hour observational time interval also allowed the PI more time to assess behaviors in recurrent settings or situations (bathroom, shower, shift change, etc). During the 10-day observation period (two weeks), all staff involved were asked to continue their daily routine with the participant, including the facility's current intervention policy. This included as needed (prn) medication administration,

basic distraction techniques, as well as minimizing environmental stimuli that tends to cause disruption on the unit. The importance of personal history or "life history knowledge," as previously discussed (Egan et al., 2007), was also emphasized in this facility's admission process and includes a two page history that recorded birth date, birth place, past hobbies, current hobbies, favorite music, marital status, and number of children (if any). This was used by the facility to better implement individualized interventions in the case of problem behaviors.

The number of instances the participant displayed each combative behavior were recorded on observation sheets by participating staff (CNAs) and/or the principle investigator (PI). For example, if the patient slapped and punched a staff member while toileting, the PI placed one check mark for slapping and one for punching in the appropriate time interval on the observation sheet. Other than concern for the staff members' safety, the PI was not concerned with how many times the patient actually slapped the staff member in that particular instance, merely if the behavior occurred at all in that time frame. This was explained to the staff members in an informal meeting before the first observation day began.

The participant had individual observation sheets for each day that were provided to the CNAs by the PI at the beginning of the observation period (7:00 a.m.) for the morning shift or beginning of the afternoon shift (2:00 p.m.). The PI was present in nearly all cases of aggression; however, the PI depended on the CNAs observations when she was away to lunch. Lunch time (12:00 p.m.-1:00 p.m.) was the only time interval the PI was not present for data collection. Staff made check marks to identify the frequency of a behavior during the appropriate time interval. Observation sheets also contained a blank space at the bottom of the check-list to allow identification of location or behavior that is not included in the checklist. The behavior needed to be physically aggressive and/or harmful to self, staff or other residents.

The number of behaviors (frequency) served as the dependent variable with regards to graphing the data collected. Although a fluctuation of behavior frequency occurred and was expected, this 10 day period of observation established baseline information. Some fluctuation was expected, in part, because of the disease process itself, as well as other variables such as acute illness. The PI hypothesized that the combative behavior would decrease and plateau after implementing interventions informed by the Hierarchic Dementia Scale (HDS) tool.

Following the 10-day baseline collection, the PI had planned to have the LPNs administer the HDS; however, due to time constraints, the PI administered the HDS to the participant. The instrument was administered in four separate sessions on two consecutive days (2 sessions on day 7, and 2 sessions on day 8) to prevent tiring and attention deficit in the patient. In total of the four sessions, the administration of the HDS tool took approximately 25 minutes.

Instrument

The HDS (Cole & Dastoor, 1987 & 1996) is an assessment tool that enables the researcher to identify strengths and weaknesses with regards to cognitive and mental functioning. The instruction manual and all tools necessary were obtained from the secondary author of the original study, Dastoor (Cole & Dastoor, 1987). The scale consists of 20 subscales and each subscale contains 5-10 items with values of 2 or 1 point, respectively. The subscales are hierarchically organized from least complex to most complex. They include orienting, prefrontal, ideomotor, looking, ideational, denomination, comprehension, registration, gnosis, reading, orientation, construction, concentration, calculation, drawing, motor, remote memory, writing, similarities, and recent memory. Scores for each subscale may range from 1-10; 10 indicating that the individual was able to complete the most complex item. For example, in subscale reading, a participant can score the maximum 10 points if he/she is capable of reading a

paragraph with no errors. Two points are awarded if the participant can recognize and say the letter "M". If the participant can only say the letter "M", this can be categorized or recorded as a weakness, and interventions would not include involving the participant in writing exercises (letters, poems, etc), as this might prove frustrating for the participant, and paradoxically result in problem behaviors such as aggression. The maximum score after all subscales have been completed is 200. This represents no cognitive impairment, whereas a score of 48 represents a severely demented, cognitively impaired patient.

The PI encouraged the participant's performance during the completion of the HDS by speaking slowly and in a normal tone, repeating instructions, rewording the questions, and/or using visual aids, etc., also being mindful to smile and remain relaxed. Again, the assessment took approximately 25 minutes, broken down into four sessions. The patient's score was then evaluated by PI, the LPNs, as well as the investigator's research advisor. Strengths and weaknesses were determined by grouping the highest scored subscales together and the lowest scored subscales together (see Appendix G).

Intervention

An implementation manual for the HDS was obtained from another outside source familiar with Cole & Dastoor's work (Freegard, 1996). Freegard organized simple, brief intervention options for each possible score in the manual. The manual's interventions were, then, tailored to the participant by the LPNs, principal investigator (PI) and investigator's advisor, based on clinical experience, the participant's personal history, and current strengths and weaknesses. The LPNs, PI, and research advisor have no previous experience using the HDS, although the PI became familiar with the tool by administering it to willing practice participants before the study began. The goal of this intervention was to maximize the participant's strengths

while minimizing the weaknesses, ultimately resulting in the reduction of aggressive behaviors exhibited by the participant.

All unit staff were asked to attend an informal meeting at the beginning of the work shift that presented the patient's profile of baseline information as well as the intervention plan developed by the PI, LPNs, and PI's advisor. All staff, in turn, adjusted the environment and altered their interactions with the participant based on the information shared at the meeting. Interventions were overseen daily by the PI to maintain clarity of the message (purpose of the study), consistent administration of the intervention, and to ensure maximum success.

The researcher observed the behavior with the implementation of the HDS intervention similar to the means of collecting baseline data. In other words, behaviors were observed for a 12-hour period, 7:00 a.m. – 7:00 p.m., Monday-Friday for a 10-day period. The intervention was not taken away from the patient in order to observe whether or not the participant would return to baseline of aggressive behaviors. It is unethical practice to take away actions and activities that are beneficial to the participant patient in the nursing care facility. A table of the observational period that includes the days of the study in numerical format and what was happening on each day can be found in Appendix H.

Interventions developed by the PI based on the evaluation of the HDS scores included music therapy in bathroom and shower room as a distraction method. This was music that the staff reported that she enjoyed dancing to daily and was available on a CD on the AD unit. The PI and CNAs involved in the bathroom and shower room initiated dance movements so that the participant would join along, in order to distract her from a previously uncomfortable situation. With the participant's anxiety eased, she was able to willingly assist the PI and CNA undress herself, sit on the shower chair and be moved into the shower area while still shrugging her

shoulders and bouncing her feet in a dancing fashion. Although it was not recognized using the

HDS, the PI observed that the participant became more anxious and aggressive when two CNAs

and the PI were present versus one CNA or when two CNAs were interacting with her at the

same time. Therefore, the PI suggested that during the intervention phase, only one CNA and

herself (PI) should be present in the bathroom and shower room. Also, the PI ensured that only

one person was interacting with her at a time. For example, instead of two assistants taking off

her clothes in the shower room, the PI only allowed one to help her take her clothes off, while

the other either got the shower prepared (water on and warm, towels and washcloths ready) or

distracted the participant with dancing.   However, if the environment became too tense and the

participant became agitated and/or aggressive, both the PI and CNA would calm the participant

to prevent an unsafe situation.

Interventions also included repeating instructions slowly, using one-step commands (i.e.

"Hold this bar," "Sit in this chair," "Raise your arm," etc.), and laminated signs designed by the

PI. Signs were important to the intervention process because the results of administering the

HDS tool indicated that the participant was still able to read and identify objects using cue cards,

which was an ability that the unit staff had not recognized in previous methods. The laminated

signs were made out of white card stock and were the size of a standard sheet paper (8.5 x 11

in.). The writing on the signs was black print. The PI did this to make it easier for the

participant to identify important objects in the room and how to use them (i.e. 'Toilet', 'Towels',

'Water', 'Hold'). For example, the CNA or PI would ask the participant to read the sign before

asking her to do anything. If the participant could verbalize what the sign said (i.e. 'Toilet',

'Hold', etc.), the PI felt as if this ensured the participant knew where she was and what she was

supposed to do. The sign "Hold" seemed especially important. It is still unclear as to why the

participant became so aggressive when asked to sit on the toilet or assisted to a sitting position onto the toilet. The PI hypothesized that it could be because of her history of osteoarthritis; therefore, lowering herself to the toilet could become painful, and aggression is her outward reaction to pain. However, during intervention, the PI asked the participant to read the "Hold" sign, which was located above a bar attached to the wall next to the toilet. Once she verbalized what the sign said, the PI then asked her to hold the bar and use it to sit herself on the toilet. As simple as this seemed, it proved to be extremely helpful with toileting. The PI also used signs to personalize the room in order to ease participant's anxiety in situations that previously resulted in aggression (i.e. '_____'s shower',   '_____'s bathroom'). It seemed that the participant became more willing to enter the bathroom or sit on the shower chair once she read the sign that indicated that this was her room as opposed to a strange, unfamiliar room. Intervention tools were left on the unit to be used by staff after the research concluded to encourage the continuation of interventions with this participant.

Chapter IV

Results

The characteristics of the sample (patient and staff) and the results of the study in relation to the research question will be discussed in this chapter.

Demographic Characteristics

One participant was selected to complete the study. The patient was an 89-year-old, Caucasian female. She was of average height and weight (64 inches; 159 pounds). Her medical diagnosis contributing to her placement in a nursing home care facility was Alzheimer's disease (AD). Other past medical diagnoses included insomnia, hyperlipidemia, hypertension, depression, osteoporosis, muscle weakness, anxiety and post right mastectomy. Current medical diagnoses are reported to be well managed by medication and staff intervention. Daily medications included aspirin, potassium supplement, vitamin D supplement, anti-hypertensive (Diovan), lipid-lowering agent (Lipitor), anti-depressant (Citalopram) and anti-psychotic as needed (Ativan). In the last 3 years of residing in this nursing home care facility, the patient's progressive Alzheimer's disease has been evaluated 3 times using the MMSE. Her scores have ranged from 5-8 out of a maximum of 30 points. Her AD has been classified as severe (less than 10) according to these scores.

Participating staff included two Licensed Practical Nurses (LPNs) and six Certified Nursing Assistants (CNAs). The nurses and assistants were all female and ranged in age from 22-65 years. The average age was 41.38. Staff either identified as Caucasian (50 percent) or African American (50 percent). Education level ranged from 9th grade to Master's degree. All worked full-time as part of the inclusion criterion. None of these categories contained sufficient

numbers of participants; therefore, no further data analysis was conducted to correlate demographics with other findings.

HDS Scores

According to results from the Hierarchic Dementia Scale, areas of cognition were confirmed as strengths or weaknesses. Strengths were labeled as subscales in which the participant scored a 6 or above. Areas of strength included orienting (10), prefrontal (10), ideomotor (7), looking (10), denomination (6), comprehension (7), motor (7), and writing (8). Respectively, weaknesses were labeled as subscales with a score of 5 and below.   Areas of weakness included ideational (5), registration (2), gnosis (5), reading (4), orientation (2), construction (2), concentration (4), and drawing (3). Strengths and weaknesses can also be seen in Appendix F. All scores added together assigned the participant with a score of 92 out of 200. The average score for the completed subscales was 5.75.

While 16 of the 20 subscales were completed by the participant, other subscales were not. These subscales included calculation, remote memory, similarities, and recent memory. The incomplete subscales were repeated at different times to allow for fatigue and ability to cooperate, however, a score could not be determined. The PI concluded that these tasks could not be completed because of the severe progression of the participant's AD and associated cognitive decline.

The HDS also suggested the stage of progression for each score with regards to the disease process and cognitive decline as minimal, mild, moderate or severe. The majority of the scores presented as moderate cognitive decline, according to the HDS graph system. This included 7 subscales (ideomotor, ideational, denomination, gnosis, reading, orientation, and construction). Five scores fell into the minimal cognitive decline area, 3 reflected mild decline,

and only 1 completed subscale represented severe cognitive decline, which was registration. Again, 4 subscales were incomplete and can be considered severe cognitive decline; therefore, 5 in total represented severe cognitive decline.

Observational Findings

Data gathered during baseline and intervention phases were a measure of frequency. Frequency data included the number of days aggression occurs and the number of behaviors exhibited. It should also be noted that aggressive behaviors not present on the original checklist of seven behaviors were also incorporated into the data collection and included "stomping," "throwing objects," and "pulling hair." bringing the total of observed behaviors to 10. Although not on the original checklist, the PI felt that these behaviors were aggressive in nature and were, therefore, to be included in the data analysis.

Baseline data collected showed that the participant was aggressive 7 out of the 10 days observed and exhibited aggressive behaviors in 8 isolated incidents. These incidents were violent in nature, and often needed both CNAs as well as the PI present to calm the participant and prevent her from injuring herself and the staff. Also, the participant demonstrated 2-6 of the 10 behaviors listed during each incident. For example, on day 2 of observation, the participant pushed, slapped, scratched, kicked, pinched, and punched (6 behaviors) in the bathroom; whereas, on day 7 of observation, the participant only pushed and bit (2 behaviors) in the shower. Patterns of aggression were also identified. The participant was not aggressive throughout the entirety of the day, but had sporadic episodes/incidents of aggression. These episodes occurred in the shower room and bathroom and were directed towards the CNAs and the PI. This was usually a result of disrobing the participant or assisting with bathing/cleaning the participant. The participant also had what appeared to be a substantial fear of water while

showering, which, in most cases, led to aggressive outbursts. The participant was not aggressive towards other residents or LPNs.

Intervention data collected revealed that the participant was aggressive 5 out of the 10 days observed and exhibited aggressive behaviors in 9 isolated incidents. This represents a 28.6 percent decrease in the amount of days the participant became aggressive, although there was an increase in the number of aggressive incidents that occurred. During each aggressive incident, the participant exhibited 1-4 of the 10 behaviors listed, with the exception of 6 behaviors on day 19, which is discussed later. The episodes that occurred during the intervention phase also occurred in the bathroom and shower room and were directed towards the CNAs and PI. It should also be noted that on the 5th day of intervention (day 15), the participant contracted a urinary tract infection (UTI), developed a fever, and after urine cultures, was placed on antibiotic therapy. Since the antibiotic therapy was ordered twice a day for 10 days, the participant remained on antibiotics for the remainder of the intervention process. An increase in the incidents of aggressive behavior can be seen on days 16-18 and spike on day 19 following the UTI diagnosis (Day 15) during the intervention phase. A frequency graph of aggressive incidents can be found in the graph in Appendix I.

Chapter V

Conclusions

In this chapter, the findings are interpreted, and limitations are discussed. Recommendations for further study are also addressed.

Interpretation

The Hierarchic Dementia Scale was designed to track the progression of AD according to the reversal of Piaget's cognitive development theory, as well as categorize the scores as minimal, mild, moderate or severe cognitive decline (Cole & Dastoor, 1996). It should also be noted that the classification of strengths and weaknesses corresponds to Martha Roger's Science of Unitary Human Beings theory (Rogers, 1970) idea of identifying strengths to maximize positive health potential.

During baseline observations, patterns revealed that the participant was physically aggressive in the bathroom and shower room. These data suggest that this behavior may be a result of the participant's past history reports of paranoia, "jumpiness" and modesty. As Rogers (1970) suggests, transactions between man and the environment are "characterized by continuous repatterning" (p. 53). When the participant is placed in similar uncomfortable environments, she tends to react in the same fashion, forming a pattern. The HDS scores further suggest that she scored low in areas of orientation and registration, which essentially meant that she lacked the ability to register familiar assistants' (CNAs) faces and orient herself to situations such as the bathroom and shower room. In other words, the participant was frightened and, subsequently, aggressive, when she was placed in an environment that she did not understand, with people that she did not recognize, or recognized as a threat. It appeared that in the majority of the encounters, she saw the assistants and PI as threats because they were attempting to undress her

partially (bathroom) or fully (shower room) in an unfamiliar and public area with minimal explanation and/or reason.

During intervention observations, it appeared that the participant responded positively in these previously unfamiliar places when the assistants and PI introduced themselves each encounter as well as thoroughly explained the reason and environment itself. The environment also contained signs/cues that eased the participant's fear. When the participant was asked to read the signs ("Hold", "Toilet", "Water"), she seemed to better understand the situation and what she could expect so as not to be surprised or frightened. The PI determined this through the participant's willingness to participate and pleasant demeanor (smiling, nodding head, laughing, etc.) after being presented with the explanations and signs/cues. It was also noted that music in the shower room and bathroom produced a positive reaction from the participant in previously difficult instances or undressing. The participant responded with dancing, laughing and smiling when one assistant distracted her with the music therapy and dancing, while the other continued undressing her. Also, in some instances, the PI recognized the need for the participant to perform tasks independently with the help of leading/mirroring by the assistants to avoid aggressive outbursts. This typically occurred when the participant was getting up from the toilet and bathing herself. When the assistants showed her the "Hold" sign and demonstrated holding the bar and pulling their body up, she was able to do the same with no difficulty. Like the bathroom, the participant positively responded to bathing in the shower room when the assistant and PI mirrored motions of bathing their own body so she could bathe herself.

With regards to data analysis, it appears from the "Frequency of Aggressive Incidents" graph in Appendix I that the participant became more aggressive during the interventions phase. Although there were an increase in incidents (thought to be caused by the contraction of a

urinary tract infection), the episodes were less intense. The participant may have gotten aggressive 3 times in one day, but she exhibited less aggressive behaviors than in baseline observation. For example, looking at day 6 of baseline and day 6 of intervention (Day 16), the participant had one aggressive incident on both days. However, during baseline observation, she exhibited 4 aggressive behaviors (pushing, scratching, pinching and punching); whereas, she only exhibited 1 aggressive behavior (pushing) during intervention observation. Also, during baseline, the behaviors became so intense, that it appeared as if the participant was attacking the staff by slapping, punching and biting because she was frightened and angry. On the contrary, the participant was resisting an uncomfortable request during intervention by pushing, and once the request was made clear, the situation was diffused quickly thereafter.

As previously noted, the participant contracted a urinary tract infection (UTI) during the intervention phase. This became a confounding variable in the study that the PI could not adjust for in data collection and analysis since it was not a known variable before the start of study. Aggression spiked following this diagnosis, and could have negatively influenced the results of the study, decreasing the positive impact of the interventions as seen in the "Frequency of Aggressive Incidents" graph in Appendix I. The PI concluded that the spike in aggressive behavior was at least in part a result of the UTI because no other spike in aggression had been noted previously in baseline data, and there was a decrease in aggression during the days leading up to the UTI diagnosis. Since the initiation of antibiotics began on the evening of day 18, the PI attributes the decrease in aggressive behavior on day 20 (at least 24 hours after the initiation of antibiotics) to the antibiotics treating the UTI. However, this conclusion could not be confirmed. Given more time during the intervention phase, the PI could have tracked the progression of

behavior after the UTI was treated and antibiotics were finished or repeated the intervention phase once the participant's urine analysis came back negative for an infectious process.

It should also be noted that the HDS categorized the participant's dementia stage as "Moderate." With 7 of the subscales falling into the "moderate" category (minimal-5, mild-3, severe-5), the HDS overall score reflects differently than previous MMSE scores. As mentioned in Chapter III, the psychologist who completed the MMSE with the participant on 3 separate occasions throughout a 3 year period diagnosed her with severe dementia by only scoring 5-8 out of 30 points. Any score below 10 out of 30 is considered severe cognitive impairment. For example, the participant scored the maximum points of 10 in the orientation category during the HDS administration; however, she scored a 0 in orientation during the MMSE. Also, the psychologist recorded a score of 0 in the language category when he asked the participant to read the phrase "Close your eyes"; however, the participant scored a 7 out of 10 in the HDS's comprehension category by reading off commands from cue cards and doing as they say. This reflects back to Robert, et al. (2010) in stating that the MMSE is quicker than the HDS (5-10 minutes as opposed to 15-30 minutes), but it can also have ceiling effects because of its simplicity, which affect how accurate it is at measuring complex cognition processes.

With the HDS implementation manual provided by Freegard (1996), as well as the teams' clinical experience, knowledge of the disease and human behavior, and appropriate interventions, the PI determined that the individualized interventions did produce positive results with regard to participant's behavior and the staff's response to the change in behavior. Interventions could not have been as successful without creativity and imagination, or "thinking outside the box" throughout the process (Rogers, 1970). Rogers (1970) states that not only is scientific nursing knowledge needed to serve mankind, but also "imaginative, intellectual judgment" (p. 122).

Considering the complexities of the disease process, it is imperative for nursing researchers and practicing nurses, alike, to remain "flexible and creative, individualized and socially oriented, compassionate and skillful" (p. 128) when determining interventions for any given problem behavior, including aggression.

Staff also provided the PI with anecdotal statements that reinforced the positive data analysis. According to a LPN involved in the study, the aggressive behavior was "better managed" by the HDS informed interventions "more so than any used in the past." Once the study was concluded, a CNA also reported that "[the PI] was an extreme help with [the participant] and we need her to stay and do this with everyone on the unit."

Limitations

Sample size may have been a limitation to this study. A different study design using a larger sample may have been able to confirm the positive results and reduction in aggression and allow the research community as well as the public to feel more confident in the HDS as a means to individualize interventions for Alzheimer's patients exhibiting aggression. Although this study provides very specific results for an individual case, it does not give research the ability to generalize findings to all Alzheimer's patients who exhibit aggression. Using a different study method like a control group with a larger sample would also allow the researcher to include different population variables such as race, age, and gender. This will be useful in validating the use of the HDS as a means of intervention planning with a variety of patients.

The AB design may also be interpreted as a limitation to this study. According to Miltenberger (2008), this is not a true research design because it can not accurately determine that the reduction of aggression is a direct result of the interventions in place. In order to determine if the interventions do, indeed, directly influence the change in aggression, the PI

would have had to record baseline, implement intervention, and then remove interventions to see the return to baseline. This would indicate that the aggression was directly influenced by the interventions put in place. However, the PI could not consciously justify taking interventions away because they were beneficial to the participant.

The PI administered the HDS assessment instead of a direct caregiver like a professional nurse. This is also a limitation of the study. One of the goals of this study was to allow the nurses involved to administer the HDS to the participant; however, with time constraints during the shift (medication administration, documentation) and the issue of only having one nurse off the unit at all time, it was not feasible or conducive for the nurse to administer the tool appropriately and also to allow the participant enough time to give accurate responses. Although the PI was familiar with the tool, the PI intended for the nurses to administer the tool. However, the nurses were receptive to the interventions implemented and felt confident that they had created an environment that supported the study's interventions. They also suggested that they would enjoy having the time to do this assessment themselves, but with the staff scheduling and current nurse/patient ratios in place at the time, it was not an option.

There was also a lack of interrater reliability within the study. The PI was the only party involved that was trained in research and observation methods. Although the behaviors and checklist were thoroughly explained to all participating staff, it is difficult to determine if the PI and CNAs would have agreed on frequency of behavior occurring in the absence of the PI (12:00 p.m.-1:00 pm). This could have skewed the results. Although this was a possible flaw in the study, it was unrealistic for the PI to be present for the entire 12 hour shift. However, given the scope of research, the PI did have a sufficient numbers of reliable staff members to complete the study successfully.

Recommendations for Further Study

To address the research design, a true research design could have been used that would not involve removing interventions. This design is known as multiple-baseline-across-settings (Miltenberger, 2008). As noted previously, the participant was aggressive in two different settings, bathroom and shower room. This design would involve implementing the interventions in only one of the settings first and then implementing the interventions in the other setting to show the change is due to the intervention. In other words, the PI could have implemented the interventions in the bathroom first for a set amount of time, while not intervening in the shower. Then, the PI could implement the interventions into the shower room along with the bathroom. In order to determine if the interventions are the cause of the change, a graph would show a decrease in the behavior during the interventions only in the bathroom at first, while the shower aggression still mimicked that of baseline. When the interventions are, then, implemented in the shower room, a similar decrease in aggression should be seen in the shower room along with the bathroom observations.

Although this single subject study (case study) did produce clinically positive results, a larger sample could allow researchers the opportunity to produce statistically significant results with the use of the Hierarchic Dementia Scale and individualized interventions using the HDS Implementation Manual. This may also give the nursing research community more confidence in the results if the study were replicated and validated on a larger scale. Time was a contributing factor to the implementation of a case study method; however, if future researchers could extend the study longer than 4 weeks, it would be feasible to replicate this study with multiple participants. Furthermore, it would be beneficial to perform further studies in nursing home facilities outside of South Mississippi and southern United States region. It would also be

useful to study the HDS informed interventions with different level of severity of disease, different ages and ethnic groups.

This study's results were comparable to those achieved by Cole and Dastoor (1987, 1996) and Paterson et.al (2000). They resulted in the creative use of nursing interventions to improve patient quality of life and contributed to safety in the nursing home environment; however, studies can always be improved as this is recognized above. Repetition and improvement of studies similar to this will contribute to scientific nursing knowledge in more ways than one and can then be translated into nursing practice in a broader fashion. True, case study methods may not be as sound as other experimental designs, but this study was able to lay the foundation for future nursing research using the HDS. This study demonstrated that the HDS is capable of being used as a means of developing sound, informed, and creative interventions to decrease aggression in Alzheimer's patients, contributing to the safety of the patients and staff and, ultimately, improving the patients' quality of life while in the care of nurses.

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Appendix A

WOODLAND VILLAGE
Nursing Center | Diamondhead, MS

April 12, 2012

Nicki Relan
3317 West 4th St. Apt 69
Hattiesburg, MS 39401

Dear Ms. Relan:

As Administrator of Woodland Village Nursing Center I would like to formally grant your request to conduct your study involving Alzheimer's patients in a long term care setting as part of your honors thesis project. I'm sure you will find the staff here able and willing to participate and as you are aware, we have several residents with Alzheimer's and various forms of dementia that will likely meet the targeted criteria for your study. Please feel free to contact me or share my information with any of your Professors/Advisors regarding any specific questions about the facility or otherwise. Thank you and good luck.

Sincerely,

Kenneth Smith, LNHA
Woodland Village Nursing Center

Appendix B

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI.

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **12042604**
PROJECT TITLE: **A Study of the Effectiveness of Interventions using the Hierarchic Dementia Scale in Alzheimer's Patients Exhibiting Aggression**
PROJECT TYPE: **Thesis**
RESEARCHER/S: **Nicki Relan**
COLLEGE/DIVISION: **College of Health**
DEPARTMENT: **Nursing**
FUNDING AGENCY: **N/A**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF PROJECT APPROVAL: **05/01/2012 to 04/30/2013**

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair

Appendix C

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT
Nurse/CNA Consent

Consent is hereby given to participate in the study titled:

EFFECTIVENESS OF INTERVENTIONS USING THE HIERARCHIC DEMENTIA SCALE
IN ALZHEIMER'S PATIENTS EXHIBITING AGGRESSION

1. **Purpose:**

The **goal** of this study is to find out if interventions (activities or actions) by nurses can reduce
aggressive behavior in patients with Alzheimer's disease

2. **Description of Study:**

        The goal of this study is to find out how if certain activities or actions developed by
nurses will help decrease aggressive behavior in patients with Alzheimer's disease. I am asking
for your help in observing patients (CNAs) and developing interventions (nurses).

        First, the nurse, CNAs and I will watch the patient and count the number of physically
aggressive events that occur in two weeks. Next, the Hierarchic Dementia Scale will be given to
the patient (by the nurse & me). This scale is very easy and will not harm the patient. It is made
up of several tasks and takes only 15 minutes to complete. The patient's score on this scale will
help the nurses and me to plan activities that will help to decrease the patient's aggressive
behavior. After these activities have been used with the patient, the nurse, CNAs and I will again
watch the patient and count the number of physically aggressive events.

        You will be asked to participate only during the hours that you are regularly scheduled to
work. The approximate length of time to complete the study is 20 days. After the intervention is
developed, you will be asked to attend a brief training session. You will receive a stipend of $25
that day to learn about the intervention. Once the intervention has been developed, you will be
asked to observe again (with my help) for 10 days (Monday-Friday; 7:00am to 4:00pm for two
weeks) to determine if the intervention has worked.

In order for you to be part of this study you must be:

1. Full-time (40 hours or more) on Alzheimer's unit of nursing home care facility
2. A Registered Nurse or
3. Certified Nursing Assistant

3. **Benefits:**

There are no direct benefits to the nursing staff. If you agree to participate and consent to training (60 minutes), you will receive a $15. This study will further the nursing community's knowledge of dementia-related aggression. Benefits of this study to the patient include a possible reduction in aggressive behavior and a higher quality of life.

4. **Risks:**

There are no risks to patient, nursing staff or facility (protected under the direction of the Principal Investigator as well as the University of Southern Mississippi's Internal Review Board). Participation in this study will not affect your employment at Woodland Village Nursing Center.

5. **Confidentiality:**

Names of the patient, nursing staff and facility will remain anonymous throughout the study. The participant will only be identified as "participant," as he/she is the only participant and his/her demographics (age, race, educational level). Demographics will also be collected for the nurse and certified nursing assistants including the same as the participant (age, race, educational level).

6. **Participant's Assurance:**

Results from studies like this cannot be predicted, but we will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and you may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Your decision to participate in this study or to withdraw from it will not be shared with your employer and will not affect your employment at Woodland Village Nursing Center.

Questions concerning the research should be directed to Nicki Relan (principle investigator) at (228)342-4016 or Dr. Elizabeth Harrison, RN, PhD. (thesis advisor) at (601)266-4993. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participant.

8. **Signatures:**

In conformance with the federal guidelines, the signature of the participant must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form.

\-   \-
Signature of the Research Participant   Date

\-   \-
Signature of the Person Explaining the Study   Date

Appendix D

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT
Patient/Guardian Consent

Consent is hereby given to participate in the study titled:

EFFECTIVENESS OF INTERVENTIONS USING THE HIERARCHIC DEMENTIA SCALE
IN ALZHEIMER'S PATIENTS EXHIBITING AGGRESSION

1. **Purpose:**

The **goal** of this study is to determine if interventions can reduce aggressive behavior in patients
with Alzheimer's disease. Ultimately, aggressive behavior will be reduced; therefore, providing
positive research results that can be used by the entire nursing community's knowledge and
practice in nursing home facilities.

2. **Description of Study:**

 The goal of study is to determine how well the scale (Hierarchic Dementia Scale) (see
attached), works at reducing aggressive behavior in Alzheimer's disease (AD) patients. The
participant will be pre-diagnosed with AD and has been aggressive in the past and/or currently.
We will watch patient and count the number of physically aggressive events that occur for two
weeks. Once the observation is complete, the scale will be given by a registered nurse and me
(principal investigator) to the participant. An intervention plan will be developed with the help
of the registered nurse and principal investigator based off the individual's score. The
intervention plan will be focused to maximize strengths and minimize weaknesses. Observations
with the intervention in place (change of environment, different activities) will reveal if
aggressive behavior is reduced. Findings will be able to suggest if the scale can be used to
manage aggressive behavior in AD patients.

 Inclusion criteria for participant include
 1. Pre-diagnosed with Alzheimer's disease
 2. Displays and/or has displayed physically aggressive
 behavior
 3. Resident of nursing home facility 6 months or longer
 4. Willingness to participate (granted by guardian/Power of
 Attorney)
 Inclusion criteria for staff include
 5. Full-time (40 hours or more) on Alzheimer's unit of
 nursing home care facility
 6. Registered Nurse
 7. Certified Nursing Assistants
 The study, consisting of patient participant and nursing staff (nurse and certified nursing
assistants), is contained in the exclusive Alzheimer's unit, which is provided by the nursing

home care facility in southern Mississippi. Electronic access codes are used to enter and exit the area.

The approximate length of time to complete the study is 20 days. Participant will be observed for 10 days (Monday-Friday; 7:00am to 4:00pm; two weeks). Registered nurse and Principal Investigator will give the scale (Hierarchic Dementia Scale) to the participant, which will take between 10 & 15 minutes the following Monday. Registered nurse and Principal Investigator will develop an intervention and training for remainder of staff will happen immediately after. Participant will be observed with intervention in place for 10 days (Monday-Friday; 7:00am to 4:00pm; two weeks) to determine if the intervention works.

3. **Benefits:**

Benefits of this study to the participant include a possible reduction in aggressive behavior and a higher quality of life. Nursing staff and family should also know that the success of this study will further the nursing community's knowledge of dementia-related aggression.

4. **Risks:**

There are no risks to patient, nursing staff or facility (protected under the direction of the Principal Investigator as well as the University of Southern Mississippi's Internal Review Board).

5. **Confidentiality:**

Names of the patient, nursing staff and the facility will remain anonymous throughout the study. The participant will only be identified as "participant," as he/she is the only participant and his/her demographics (age, race, educational level). Demographics will also be collected for the nurse and certified nursing assistants including the same as the participant (age, race, educational level).

6. **Participant's Assurance:**

Results from studies like this cannot be predicted, but the researcher will take every precaution consistent with the best scientific practice. Participation in this project is completely voluntary, and you may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Your decision to participate in this study or to withdraw from it will not affect the care that your family member receives at Woodland Village Nursing Center.

Questions concerning the research should be directed to Nicki Relan (principal investigator) at (228)342-4016 or Dr. Elizabeth Harrison, RN, PhD. (thesis advisor) at (601)266-4993. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-6820. A copy of this form will be given to the participant.

8. **<u>Signatures:</u>**

In conformance with the federal guidelines, the signature of the participant or guardian must appear on all written consent documents. The University also requires that the date and the signature of the person explaining the study to the subject appear on the consent form.

---   -----------------------
Signature of the Research Participant   Date

---   -----------------------
Signature of the Person Explaining the Study   Date

---   -----------------------
Signature of Parent/Guardian   Date

Participant's Initials _____

Appendix E

Checklist "A" (Baseline) First Work Shift:

Aggressive Behavior Check List-A

June __, 2012

Instructions: Please check the corresponding box with the appropriate physically aggressive behavior and the time in which the behavior occurred. If the participant exhibits behaviors that could be considered physically aggressive and are not provided on the check list, please add the behavior below the column labeled "other" and check the corresponding time. Thank you for your participation.

BEHAVIORS:	7-8	8-9	9-10	10-11	11-12	12-1	1-2
Pushing							
Slapping							
Biting							
Scratching							
Kicking							
Pinching							
Punching							
OTHER:							

Thank you for your help☺

**note: Checklist "B" (Intervention) is the same format as Checklist "A"

Appendix F

Checklist "A" (Baseline) Second Work Shift:

Aggressive Behavior Check List-A

June __, 2012

Instructions: Please check the corresponding box with the appropriate physically aggressive behavior and the time in which the behavior occurred. If the participant exhibits behaviors that could be considered physically aggressive and are not provided on the check list, please add the behavior below the column labeled "other" and check the corresponding time. Thank you for your participation.

BEHAVIORS:	2-3	3-4	4-5	5-6	6-7
Pushing					
Slapping					
Biting					
Scratching					
Kicking					
Pinching					
Punching					
OTHER:					

Thank you for your help☺

**note: Checklist "B" (Intervention) is the same format as Checklist "A"

Appendix G

Table of HDS Strengths and Weaknesses:

Strengths	Weaknesses
Orienting	Ideational
Prefrontal	Registration
Ideomotor	Gnosis
Looking	Reading
Denomination	Orientation
Comprehension	Construction
Motor	Concentration
Writing	Drawing

**Participant was not able to complete all 16 scales. Incomplete Subscales include: calculation, remote memory, similarities, and recent memory (considered weaknesses and severe cognitive impairment).

Appendix H

Observational Period Table:

Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	B	B	B	B	B	B	B	B	B	B										
							HDS	HDS												
											I	I	I	I	I	I	I	I	I	I

B= baseline observation
HDS= HDS administration sessions
I=intervention observation

Appendix I

Frequency of Aggressive Incidents Graph