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THE EFFECTS OF PSYCHOTROPIC MEDICATION THERAPY ON THE BEHAVIORS OF THE INSTITUTIONALIZED ALZHEIMER'S DISEASE PATIENT

by

MARY BETH McKinney

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Nursing in the Division of Nursing Mississippi University for Women

COLUMBUS, MISSISSIPPI

December 2000
The Effects of Psychotropic Medication Therapy on the Behaviors of the Institutionalized Alzheimer's Disease Patient

by

Mary Beth McKinney

[Signatures]

Director of the Graduate School
Abstract

Alzheimer's disease is a devastating illness that is common among the nursing home population. Treatment for Alzheimer's disease is usually palliative and consists of using psychotropic medications to control aggressive and agitated behaviors exhibited by its victims. The purpose of this descriptive study was to identify behaviors exhibited by Alzheimer's disease patients before and after receiving psychotropic medications. Johnson's Behavioral System Model was used as the theoretical framework for this study. The sample (N = 33) consisted of nursing home residents with a diagnosis of Alzheimer's disease who were treated with one psychotropic medication. The researcher used chart review to examine the behaviors exhibited by the patients and the psychotropic medication received. Data were gathered using the Behavioral Assessment for Institutionalized Alzheimer's Patients. Data analysis consisted of descriptive statistics and t tests to measure significant changes in behaviors. Six categories of measurement included memory/recall ability, cognitive skills for daily decision making, indicators of delirium-periodic disordered thinking/awareness, indicators of depression, anxiety, sad mood, and behavioral symptoms.
Findings revealed significant changes in all areas measured. Conclusions derived from the study were that psychotropic medications significantly impact behaviors of the Alzheimer's disease patient. Recommendations include replication of the study with a larger sample, refinement of the tool utilized to measure behaviors, education of personnel regarding behaviors exhibited by the Alzheimer's disease patient, and comparison of the effects of different psychotropic medications on the behaviors of the Alzheimer's disease patient.
Acknowledgments

There are many people who had a part in making my research and subsequent masters degree a reality. I would like to thank all of them for their support and encouragement during the past few months.

My husband, Jerry, my daughters, Amy and Carrie, and my parents, William and Rosemary Parks, I owe special thanks for sustaining me through this time. Without them this project would have been impossible.

I would like to acknowledge the administration and staff of Alcorn County Care Inn for their assistance in completing my research and allowing me to audit patient records for this study.

I would like to thank the members of my committee, Dr. Lynn Chilton and Lorraine Hamm, for their assistance in the writing of this thesis. They gave their time and made suggestions that made the completion of my research much easier.

And to Dr. Melinda Rush, the chairperson of my committee, my sincere thanks for all the suggestions and support over the last months.
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Chapter I

The Research Problem

Psychotropic medications are among the most frequently prescribed pharmacological agents for America’s elders. Originally designed to treat individuals with a history of documented illness, these drugs are useful when used appropriately. However, misappropriate use of psychotropic drugs has been documented by epidemiologic evidence in research (Sherman, 1994).

Alzheimer’s disease is the leading cause of serious mental illness in persons over the age of 65 years. Yet the most significant causes of cognitive impairment in Alzheimer’s disease patients are not necessarily disease related but may be side effects of sedative/hypnotics and long-acting benzodiazepines (Sherman, 1994). Although psychotropic medications are indicated for mental illness in persons with Alzheimer’s disease, these drugs are being used to control behavioral problems without adequate examination of the long-term cognitive effects (McShane & Keene, 1997; Yeager, Farnett, & Ruzicka, 1995).
Alzheimer's disease patients have more cognition, memory, and orientation problems as well as a generally more rapid mental decline with the use of psychotropic medications (McShane & Keene, 1997). Nevertheless psychotropic drugs have been used to control disruptive behavior and sleeplessness and, therefore, have become known as chemical restraints (Castle, 1999). These drugs were originally designed to treat individuals with a history of documented mental illness and were not intended to treat individuals with symptoms of dementia (Sherman, 1994).

Conversely, the increased sensitivity of the elderly to various drugs has been well established (McShane & Keene, 1997). Given the fact that half-life and clearance of many drugs may be altered in elders, routine use of psychotropic drugs among demented elders is questionable at best. These drugs not only alter behaviors but increase the risk for serious complications related to falls and hip fractures. Nurse practitioners in primary care and long-term care settings are often responsible for making decisions about instituting, altering, or discontinuing use of psychotropic drugs in clients with Alzheimer's disease. An empirical basis for making such decisions is needed. Therefore, the focus of this study was to evaluate
the behaviors of institutionalized Alzheimer’s disease patients before and after the initiation of psychotropic medications.

Establishment of the Problem

Dementia affects 5% of persons over the age of 65 years and 20% of those over 80 years of age. The incidence of dementia is expected to increase as the population ages. Alzheimer’s disease has been reported as the most common form of dementia and accounts for 70% of all nursing home admissions (Yeager et al., 1995). Alzheimer’s disease follows a specific pattern of cognitive losses and behavioral disturbances. The impact of Alzheimer’s disease management has dramatic physical, psychological, and financial consequences for patients and caregivers (Corcoran & Gitlin, 1992). Agitated behaviors associated with Alzheimer’s disease include aggression, irritability, and psychotic symptoms, including hallucinations and delusions. In addition, there is a progressive, irreversible loss of memory, deterioration of intellectual capacity and disorientation, and the inability to perform activities of daily living, such as dressing self, bathing, and personal hygiene (Sloan, 1998).

Behavioral manifestations of dementia include disturbance in sleep and appetite, agitation, psychotic
symptoms, apathy, as well as depressive and anxious features (Tariot, Schneider, & Porsteinson, 1997). These manifestations may persist for years and eventually may require a long-term health care approach. Patients are usually placed in nursing homes when caregivers can no longer care for them at home. The pharmacomedical economic cost for Alzheimer’s disease has been estimated at $100 million annually (Callaway, 1998).

There has been a 12% increase in the number of persons over the age of 65 years since 1900. Furthermore, the incidence of Alzheimer’s disease is found in 20% to 40% of persons over the age of 80 years. Obviously, the “graying of America” (Gambert, 1997) has had a notable impact on age-prevalent disorders; therefore, Alzheimer’s disease has had a profound effect on the perception of the public and the medical community about mental illness in elders. Issues, such as wandering, confusion, agitation, incontinence, falls, and sleep disorders, present health care workers and families with difficult problems to treat.

Many long-term care residents have varying degrees of behavioral, social, emotional, and mental disorders and receive psychotropic drug therapy. Yet, frequently used as a realistic treatment for behavioral problems in the
Alzheimer's disease patient, psychotropic drug therapy has led to patients being overmedicated, declining cognitive status and memory, and an increase in the incidence of falls (Sherman, 1994).

Falls comprise the leading cause of fatal and nonfatal injuries in persons over 75 years of age. Long-term psychotropic medication use has been strongly associated with the risk of falls in nursing homes. Research has revealed that elderly patients receiving psychotropic medications may be two to three times more likely to experience a fractured hip as opposed to those who did not receive psychotropic medications (Sherman, 1994).

In 1996 more than 250,000 older Americans suffered fractured hips at a cost in excess of $10 billion. More than 90% of hip fractures are associated with falls, and most of these falls occur in persons over the age of 70 years. Elderly persons who fall are 10 times more likely to be hospitalized and eight times more likely to die as the result of a fall. Increased risk factors for falls in the elderly include the use of psychotropic medications, cognitive impairment, and sensory deficits (Fuller, 2000). Institutionalized elders have increased risk of serious complications associated with falls, such as pneumonia,
skin breakdown, and deep venous thrombosis (Yeager et al., 1995).

Tardive dyskinesia is a condition characterized by involuntary facial movements, such as tongue protrusions and grimacing. At least 40% of elders receiving psychotropic medications will develop some form of tardive dyskinesia. Despite its persistent nature, tardive dyskinesia is often missed or mistaken as a normal part of the disease process (Sherman, 1994). Tardive dyskinesia may be irreversible and can interfere with eating and swallowing, which causes weight loss and malnutrition and can ultimately lead to death (Yeager et al., 1995). Although tardive dyskinesia is persistent in nature, it can be mistaken for worsening of the disease process. This reaction frequently leads to an increase in the psychotropic medication dose being prescribed.

**Significance to Nursing**

The current researcher sought to describe the behaviors of the Alzheimer's disease patients before and after the institution of psychotropic medications. Findings from this study may contribute to nursing research, theory, practice, and education.

*Nursing research.* This study contributed to the body of nursing research by providing new insights into
understanding the behaviors of the Alzheimer's disease patient through documentation and comparison. Conduction of the study was important in identifying behavioral symptoms of Alzheimer's disease patients and the relationship between those symptoms and the medications used to control them. Data from this study provided relevant information for future health care professionals caring for Alzheimer's disease patients. Increasing awareness of the type of medications used underscores the importance of issues such as safety and improving quality of life for those with Alzheimer's disease. Finally, this research serves as a springboard from which to develop more studies focusing on the behaviors of the Alzheimer's disease patient and the medications used to treat them.

Nursing theory. This study served to advance Johnson's Behavioral System Model as an appropriate basis for describing the behaviors of the Alzheimer's disease patient. Johnson's concepts of behavioral systems, equilibrium, stressors, and tensions are particularly relevant to the behavior of the Alzheimer's disease patient receiving psychotropic medication therapy.

Nursing practice. Findings from this study may be of significance to nurses and nurse practitioners charged with caring for persons with Alzheimer's disease. The
researcher sought to enable health care workers to understand the patient, behaviors exhibited, and the medications used in treatment of the behaviors. Patients with Alzheimer’s disease receiving psychotropic medications require special attention due to the potential for declining cognition, memory deterioration, and physical limitations and the adverse effects associated with these variables. The informed health care professional has the opportunity to provide holistic care to Alzheimer’s disease patients in the long-term care facility through increased understanding of the disease process and the medications used to control the symptoms.

Nursing education. As the elderly population increases and long-term care facilities become more prevalent, the need for long-term care professionals also will increase. Caregivers should be educated regarding the unique needs of the Alzheimer’s disease patient and the medications used to treat dysfunctional behaviors. Nursing educational systems at both the baccalaureate and masters levels must continue to stay on the cutting edge of research and practice as the number of Alzheimer’s disease clients in the health care delivery system continues to increase. Findings from this study may contribute valuable information to such programs.
Theoretical Framework

The theoretical framework guiding this study was Johnson's Behavioral Systems Model (Johnson, 1968). Johnson's model has been used in a variety of studies that support man as a behavioral system. In the current study the Alzheimer's disease patient's behavioral system was altered by both the disease and psychotropic medications.

Johnson developed the systems framework to provide direction for nursing theory, practice, education, and research. The goal of Johnson's theory was to maintain and restore balance in the patient by helping him or her achieve an optimal functional level. The major concepts of Johnson's model used in this study were behavioral system, equilibrium, tension, and stressor (Johnson, 1968).

A behavioral system is a patterned, continual, and intentional way of behaving. This behavior forms an organized functional unit that provides interaction between the person and his or her environment. The patterned and repetitive ways of behaving that characterize man can be conceptualized as interrelated and interdependent parts that make up the whole person. This behavioral system is determined and controlled by biological, psychological, and social factors. Certain conditions must be met in order for the system to grow and
survive. Problems manifested by disorganized or erratic behaviors represent disorders of the behavioral system. This conceptualization represents man as a behavioral system and disease as a biological system disorder (Johnson, 1968). The behavioral system of the Alzheimer’s disease patient may be based on the ability to interrupt information and be affected by the environment.

Equilibrium is defined as a secure, but more or less temporary, resting state in which the individual is in accord with himself or herself and his or her environment. Equilibrium is not synonymous with a state of health since it may be found either in health or illness (Johnson, 1968). Factors that may alter equilibrium for the Alzheimer’s disease patient include the onset of confusion, loss of cognitive function, and memory. Medications used to treat these problems may also alter equilibrium and lead to loss of adaptation of the behavioral system.

Stressors refer to internal and external stimuli that produce tension and result in a degree of stability. Johnson (1998) states that stress is a process in which there is interaction between various stimuli and the defenses constructed against them. An unusual amount of
energy is required for the system to reestablish equilibrium in the aspect of stressful forces.

Tension is the state of being distended or forced and can be perceived as a disturbance in equilibrium. Tension can be destructive ineffective use of energy, hindering adaptation and causing potential structural impairment. The stressors of the Alzheimer’s disease patient usually occur from outside stimuli. Inability to adequately perform activities of daily living and memory loss provoke stress and tension which leads to agitation and frustration. The patient may be placed on medication to control behaviors that result from stressors which ultimately produce tension.

Johnson (1968) outlined health as an intangible, energetic state influenced by biological, psychological, and social factors. An individual attempts to achieve a balance in this system which will lead to functional behavior. A lack of balance in the structural or functional systems lead to poor health.

As the Alzheimer’s disease patient in equilibrium attempts to achieve balance in the system, the behaviors exhibited affect the behavioral system. The psychotropic medications used to control the patient’s behavior
produces stressors that may alter the functional level of the system and produce tension (Gardner & Garrett, 1997).

In summary, Johnson's Behavioral Systems Model was chosen as the theoretical framework to guide this study because the concept of behavioral system and the subconcepts of equilibrium, stressors, and tension were particularly relevant to the issue of using psychotropic medications in elders with Alzheimer's disease. The current researcher sought to examine the behaviors of Alzheimer's disease clients before and after the implementation of psychotropic drugs in order to assess whether such drugs indeed help to maintain and restore balance by helping the patient achieve his or her maximum functional level.

Assumptions

The assumptions of this study were as follows:

1. Institutionalized Alzheimer's patients exhibit behaviors that can be measured.

2. Institutionalized Alzheimer's patients are receiving psychotropic medications to control their behavior.

3. Charting of behaviors and medication use is complete.
4. Behavior is an ever-changing dynamic process (Johnson, 1968).

Statement of the Problem

The number of institutionalized persons with Alzheimer’s disease is increasing as a result of the rise in the geriatric population. The behaviors exhibited by the Alzheimer’s disease patient present the health care professional with a variety of concerns. The treatment of behavioral symptoms of patients has been controversial. Previous studies have shown that psychotropic medications may give rise to a worsening in cognitive decline and intensify adverse behaviors. Therefore, the problem of this descriptive comparative research was to examine the behaviors of the institutionalized patient with Alzheimer’s disease and to determine whether these behaviors changed after the implementation of a pharmacologic regimen of psychotropic drugs.

Hypothesis

One null hypothesis guided this study: There will be no significant difference in the behaviors of institutionalized Alzheimer’s disease patients before and after receiving psychotropic medication therapy.
Definition of Terms

For the purposes of this study, the following terms were defined theoretically and operationally:

1. **Behaviors**: the manner in which one acts; the actions or reactions of individuals under specific circumstances (Thomas, 1993). Operationally, behaviors include conduct such as wandering, verbal abuse, physical abuse, socially inappropriate actions, screaming, hoarding items, and resisting care.

2. **Alzheimer’s disease patients**: persons with progressive irreversible loss of memory, deterioration of intellectual functions, apathy, speech, and gait disturbance (Thomas, 1993). Operationally, Alzheimer’s disease patients were all males and females at least 60 years of age in the chosen institution at varying stages of Alzheimer’s disease who had received at least one psychotropic medication.

3. **Psychotropic medication therapy**: medications classified according to the Physician’s Desk Reference (AstraZeneca, 2000) as antidepressants, antipsychotics, sedative/hypnotic, and antianxiety agents that affect psychic function, behavior, or experience (Thomas, 1993). Operationally, psychotropic medications classified as anxiolytics, antidepressants, hypnotics, and antipsychotic
prescribed for the patient population in the designated institution.

Summary

The focus of the study was to identify behaviors of the institutionalized Alzheimer’s disease patient before and after receiving psychotropic medication therapy. In Chapter I the problem was introduced and the significance to nursing was described as well as the theoretical framework identified. One null hypothesis guided the researcher in assessing whether a difference in Alzheimer’s disease patients’ behaviors was appreciated.
Chapter II

Review of the Literature

In a selected review of the literature, several studies were found related to Alzheimer’s disease patients in nursing homes. However, studies specifically linking the role of psychotropic drugs to cognitive decline in Alzheimer’s disease patients were limited.

Castle (1999) sought to identify resident and facility risk factors from the use of psychotropic drugs since the implementation of the Nursing Home Reform Act (NHRA) of 1987. The facility risk factors included facility size, Medicaid admissions, and patient census while resident risk factors included age, agitation, gender, and cognitive decline. Castle further sought to compare the findings with resident and facility risk factors of psychotropic drug use prior to the implementation of the NHRA.

Castle (1999) defined psychotropic drugs as those that affect psychic function, behavior, or experience and included the following four classes: antianxiety, antidepressant, sedative/hypnotic, and antipsychotic. The
purpose of Castle’s (1999) study was to determine the relationships between nursing home size, reimbursement class census, demographic area, clinical type, and corporate setting and the use of psychotropic drugs. A total of 268 facilities participated in the study. In each facility, depending on size, a fixed target sample of 8, 12, or 16 residents was selected, for a final sample of 4,258. Two multivariate logistic regression models were used to predict psychotropic drug administration. Subjects were studied pre-NHRA (n = 2,170) and post-NHRA (n = 2,088). The researcher used resident interviews, staff interviews, and review of the resident record, specifically the Minimum Data Set (MDS) assessment tool, to gather data. A multistage cluster sampling was used to analyze the data. The result was a more precise comparison of the differences between the groups being researched.

Castle (1999) found that before the institution of NHRA guidelines, physical impairments, increased age, and prior stroke were significantly less likely to be associated with antipsychotic drug use. Increased cognitive impairment, dementia, depression, and a history of psychiatric problems considerably increased the use of psychotropic drug administration. The researcher also found a nursing home being part of a chain of nursing
homes was associated with a lower use of psychotropic agents (Castle, 1999).

In 1993, post-NHRA increased physical and cognitive impairments, being female and having dementia, depression, and anxiety disorders increased the likelihood of psychotropic drug administration. Facilities with high occupancy of Medicaid patients were 13.8 times more likely to give antipsychotic medications, while overall a higher number of beds in the facility significantly decreased the administration of antipsychotics. Residents with anxiety disorders were more likely to receive antianxiety medication than other residents. The criteria for prescribing psychotropic medications became more rigid in 1993, requiring more symptoms and behaviors. A major finding was that a history of psychiatric problems was still a significant reason for using antipsychotic medications.

Findings from the Castle (1999) study support the current research in view of the fact that the Nursing Home Reform Act of 1987 did initiate more stringent guidelines for psychotropic medication use in the nursing home setting. Despite the NHRA, psychotropic medications continue to be used to control behaviors of Alzheimer’s disease patients regardless of nursing home size or
reimbursement status. Therefore, it is important for health care providers in long-term care settings continue to empirically assess whether such interventions significantly impact residents' behaviors, safety, and well-being.

Berg and Dellagega (1996) sought to explore the immediate and long-term consequences of psychoactive drug use on specific measures of intelligence and memory as indicators of overall cognitive ability. The researchers believed that negative effects occurred with use of the long-term use of psychoactive drugs among the elderly, both in the community and in the nursing homes, specifically in cognitive functional ability. The World Health Organization classification system was used to identify psychotropic medications as neuroleptic, antidepressants, anxiolytics, and sedative/hypnotic.

This longitudinal study included subjects taken from gerontological and geriatric populations. The studies were based on random samples drawn from the population in Gotenberg, Sweden. An original sample of 743 persons aged 70 years was used. The continuing sample was followed up at three time periods: aged 70, 75, and 79 years.

Investigative procedures consisted of a two-part interview at each age period. The interview was conducted
by a registered nurse who administered a battery of 150 questions on health, social networks, the use of health care givers, and medications. Instrumentation included tests on mental ability and memory and intelligence. The memory test included the following: synonyms measuring verbal ability, block design measuring spatial ability, identical forms measuring perception, and memory measuring picture recognition. Intelligence was evaluated by fluid and crystallized knowledge and attention.

Two different approaches were used for data analysis. One was cross-sectional using the total groups at age 70, 75, and 79 years, and the other was a repeated measures longitudinal design using only those still alive at age 79 years and with valid scores at all three measurement points. The results of this analysis revealed that by age 75 the use of psychotropic medications increased to 39% from 29% at age 70. By age 79 the overall rate dropped to 36%.

Chi-square analysis revealed significant differences in the use of psychotropic medications based on gender at all three points of measurement. Women received more psychotropic medications than men.

To examine the relationship between the use of psychotropic medications and cognition, a separate
cross-sectional analysis of performance scores was used. Student's *t* tests were used to compare cognitive function between users and nonusers. Berg and Dellagega (1996) determined that elders at age 70 years who used psychotropic medications had significantly lower mean scores on the tests of verbal ability, spatial ability, and picture recognition and at age 75 lower scores on verbal ability, perception speed, and digit span. In the 79-year-old group, all cognitive tests regressed backward and picture recognition was significantly lower for those subjects using psychotropic medications.

Berg and Dellagega (1996) concluded that as subjects aged they received increasing numbers of psychotropic medications. The highest rate of use was at age 75 years, and women received significantly more psychotropics than men. Berg and Dellagega (1996) also found a marked trend toward stable functioning in subjects until these medications were introduced at which point a drop in cognition occurred. However, there was no indication that psychotropic medications improved cognitive function for any of the subjects at any time during the study. This study is germane to the current study in that the Alzheimer's disease patient's cognitive loss is
inevitable; however, the rate of decline may depend on many factors including psychotropic medication use.

McShane and Keene (1997) sought to analyze the relationship between neuroleptic drugs and cognitive decline in dementia. The researchers also investigated the absence or presence of Lewy bodies in brain tissue postmortem of the cognitively impaired patient receiving neuroleptics. Cross-sectional surveys have shown that demented patients receiving neuroleptics have more cognition problems than those who do not; however, neuroleptics are prescribed more often for behavioral problems. Side effects of neuroleptics include the worsening of behavioral disturbance of patients with dementia, increased falls, and fractures.

The hypothesis proposed by McShane and Keene (1997) that neuroleptics contribute to cognitive decline in people with dementia and decline in cognitive function is more rapid in patients treated with psychotropic medications who have cortical Lewy bodies postmortem. Cognitive decline was defined as increased physical aggression, disturbed diurnal rhythms, persecutory ideas, and hallucinations. Neuroleptic drugs were those drugs used to treat behavioral complications of dementia and included thioridazine, promazine, haloperidol, and
chlorpromazine. Lewy body refers to increased neuropathological substances typical in brain tissue of Alzheimer's disease patients.

McShane and Keene's (1997) 2-year longitudinal study consisted of interviews every 4 months, with autopsy performed on those who died during the study. The dependent variable for the study was the rate of cognitive decline. The independent variables were sex, duration of dementia, and cognitive score at study entry. Seventy-one subjects with dementia were recruited through general practitioners and psychiatric nurses. Most subjects had a diagnosis of Alzheimer's disease at autopsy. The mean age at entry was 72 years, and 37 of the subjects were men. The age of onset of dementia was less than 65 years in 11 patients, and the mean duration of dementia was 5.7 years.

McShane and Keen (1997) utilized the Minimental State Examination (MMSE) to measure cognitive function scores. A multiple regression analysis was performed on the subjects' scores on the MMSE. Age, sex, duration of dementia, and cognitive score at study entry were entered. Neuroleptic use and mean scores over six interviews for hallucinations, persecutory ideas, physical aggression, and disturbance of diurnal rhythms were entered stepwise.
A second analysis consisted of autopsy of 42 patients indicating the presence or absence of cortical Lewy bodies. Cortical Lewy body pathology did not make an independent predictor of cognitive decline.

The decline in the mean score for the expanded examination in the patients who took neuroleptics was twice those patients who did not take neuroleptics. An increased rate of decline was also associated with aggression, disturbance of diurnal rhythm, persecutory ideas, and hallucinations. There was no correlation between the rate of cognitive decline and the dose of neuroleptic drug therapy.

A third analysis was performed to determine a temporal relationship between the use of neuroleptics on 20 experimental subjects who had taken neuroleptics for at least 4 months. The decline in the mean score for the expanded examination in the patients who had taken neuroleptics was twice that of patients who did not take neuroleptics.

McShane and Keene (1997) determined that the use of neuroleptics causes and increases in the rate of cognitive decline. This association was dependent on the degree of dementia and behavioral symptoms for which the neuroleptic drug might have been used. The findings also revealed that
the point when patients started treatment coincided with an increase in the rate of cognitive decline. The researchers also revealed that neuroleptics used to treat behavioral complications of dementia might worsen already poor cognitive abilities. The McShane and Keene (1997) study is relevant to the current research because identification of the relationship between neuroleptic medications and cognitive decline provides more scientific information about the progression of Alzheimer’s disease and its associated behaviors.

Jacobson and Winograd (1994) sought to analyze the differing perspectives among physicians, nursing staff, and patients about psychoactive substance use in the long-term care setting. The researchers noted that nighttime disorders including both insomnia and behavior problems had a reported incidence of 45% to 64% among institutionalized elders. Psychotropic medications were used to manage these symptoms with a reported frequency of 53% to 65%. The researchers have questioned the effectiveness, appropriateness, and risk/benefit of these medications.

The psychotropic medications identified by Jacobson and Winograd (1994) were antipsychotics, anxiolytics, antidepressants, and sedative/hypnotic. The antipsychotic
drugs used were haloperidol, thioridazine, and trifluperazine. The anxiolytics included only Ativan while the antidepressants included amitriptyline, despramine, nortriptyline, and trazadone. Under the sedative/hypnotic category were chloral hydrate, diphenhydramine, flurazepam, temazepam, and triazolam.

Jacobson and Winograd (1994) defined nighttime behavioral symptoms as agitation, restlessness, combativeness, wandering, and yelling. Insomnia was operationally defined as frequent awakenings, increased sleep induction, and short sleep duration.

Research subjects included 58 residents in a skilled nursing facility. Of the 58 residents, 38 were receiving no psychotropic medications, 5 had pro re nata (PRN) orders for psychotropic medications but were not receiving any and 15 (26%) were receiving psychotropic medications on a regular basis. Consent was obtained from 14 of the 15 residents receiving psychotropic medications. Three residents were receiving psychotropic drugs on a PRN basis at least five to six times a week and were included in the study. To determine which patients could provide reliable data, the Folstein's MiniMental Status Examination (MMSE) was used. Of the residents who met other inclusion
criteria, only 6 could complete the interview with MMSE scores > 15.

Data were collected from the three following groups of subjects: (a) the patients themselves, (b) 14 members of the nursing staff, and (c) the patients' personal physicians. Instrumentation involved the use of a questionnaire interview. The interview addressed four domains related to nighttime disorders: (a) description, (b) presumed etiology, (c) management, and (d) impact of nighttime disorder, including side effects of medications. The Description domain addressed the presence of insomnia and nighttime behavior problems. The Etiology domain addressed the presumed source of the problem. The Management domain investigated the perceived efficacy of the medications and the presence of alternate coping strategies. The Impact domain explored physical, psychological, and social effects of the disorder and the medication.

The nurse’s interview included only those domains appropriate to their interactions with the patients. The patients responded to objective verifiable questions, and their responses were included in the study. The physician’s interview consisted of fewer questions to maximize participation; however, the physician
questionnaire was similar enough to the patients and staff to ensure valid comparison.

In comparing the responses of the three groups, the researchers noted differences when two of the groups disagreed on the presence of a condition or a problem. To calculate the percentage of different responses for each category, the number of the responses was divided by the two groups which had disagreed (i.e., Group 1, yes; Group 2, no; and Group 1, no/Group 2, yes) by the total number of responses.

Jacobson and Winograd (1994) found a high frequency of disagreements, ranging from 47% to 63% among patients, staff, and physicians. The respondents differed in identifying the presence of nighttime disorders and in assessing the efficacy and impact of psychotropic medications on the patient’s daily life. Patients and nursing staff had differing opinions 67% of the time. The nurses reported physical problems, such as pain, dyspnea, and frequent urination, as the cause for insomnia twice as often as the patients. The nurses and patients differed 33% of the time regarding medication efficacy. In managing their nighttime disorders the patients reported coping methods, such as relaxing, reading, remembering family members, and prayer. The nursing staff did not recognize
any of these coping methods. On questions addressing psychological effects, including fatigue, patients and nurses disagreed 50% of the time. The patients denied confusion while the nurses reported that confusion occurred frequently.

The patients and the physicians disagreed on the effectiveness of the medication 67% of the time, with the physicians believing the medication was effective three times more often than the patients. While the physician believed there were few adverse effects, four out of six patients felt there were adverse effects from psychotropic medication. The physicians believed that 10 out of 14 patients responded well to the medication and that 70% of these patients continued to experience significant nighttime disturbances according to the medical record.

The physicians and the nursing staff disagreed about the presence of insomnia 43% of the time. The nurses thought the disorder existed twice as often as the physicians. They also disagreed on the effectiveness of the medication 50% of the time, with the physicians stating that the medication was effective more often. The two groups disagreed 79% of the time on the impact of the medications on the patient’s daily life. The nurses identified problems for 11 out of 14 patients, while the
physicians reported none. Differences in the responses regarding the medications' efficacy and impact raised questions of appropriateness of psychotropic drug use among the elders. The nursing staff believed the medication was effective for only 64% of the patients. Yet, even for these patients, the nursing staff records indicated that they continued to experience nighttime disorders.

This study had two major limitations. First, Jacobson and Winograd (1994) did not operationally define agitation, restlessness, and anxiety. Instead, the conditions and disorders were described in the manner used clinically by the staff. A second limitation was the small number of patients who completed the interview, since only 6 of the 14 patients could complete the interview with some degree of reliability.

Findings from the Jacobson and Winograd (1994) study suggest that patients, nursing staff, and physicians perceive nighttime disorders and their management differently and improved methods of communication and education are needed. Despite these findings, nursing home patients with nighttime disorders are often managed with psychotropic medications. The current researcher found the Jacobson and Winograd (1994) study helpful because it
increased awareness of the differing perceptions among patients, staff, and physicians regarding the use of psychotropic medications and control of behavioral symptoms. The nursing staff indicated increased confusion and nighttime disorders associated with psychotropic drug use. The current researcher also sought to identify behaviors documented by the nursing staff before and after the institution of psychotropic drug use in elders.

The major source of problems for physicians treating Alzheimer’s disease is controlling the psychotic types of symptoms experienced by the persons affected. A primary predictor of cognitive and functional decline in Alzheimer’s disease is a worsening of psychotic symptoms, such as delusions, hallucinations, aggression, and psychomotor function (Lopez, Wisniewski, Becker, Boller, & DeKosky (1999). Although the literature seems to support the position that psychosis and abnormal behavior can affect the progression of Alzheimer’s disease, few studies have taken into account the medications used.

Lopez et al. (1999) examined whether the use of psychiatric medication and the presence of abnormal behaviors affects the progression of Alzheimer’s disease. A cross-sectional design was used with longitudinal follow-up and the likelihood of arriving at one of four
points: (a) MiniMental State exam (MMSE) score of 9 or lower, which examines cognitive and mental status; (b) Blessed Dementia Rating Scale (BDRS) score of 15 or less, which measures ability to perform activities of daily living; (c) nursing home admission; and (d) death.

Psychiatric medication included antidepressants, antipsychotic agents, and sedative/hypnotics. The psychotic symptoms described include such symptoms as delusions, hallucinations, aggressive behavior, psychomotor agitation, wandering, and depression.

The setting was the Multidisciplinary Dementia Research Clinic in Pittsburgh, Pennsylvania. The subjects consisted of 179 mildly to moderately impaired patients with probable Alzheimer’s disease. Patients were observed from 2.4 to 172 months (mean duration ± SD, 49.5 ± 27.4 months). Each patient received an extensive neurological, psychiatric, and neuropsychological examination prior to the study. Patients with clinical or radiological evidence of cerebrovascular disease were not included in the study.

Subjects were examined annually, and the follow-up period ranged from 0.2 to 14.6 years (mean follow-up period ± SD, 4.16 ± 2.38 years). Psychiatric evaluations were conducted annually by psychiatrists using a
semistructured interview with patients and primary caregivers.

The medications used by the patients were recorded on a summary form that included dosages, date of the initial prescription, and date of discontinuation of medication. The referring physician conducted the selection, administration, and response evaluation of each treatment.

Student t tests were used to analyze demographic and neuropsychiatric data. Proportional hazard models were used to determine if there were differences in the time from study entry to death, institutionalization, BDRS scores of 15 or higher, and MMSE scores of 9 or lower between patients with Alzheimer’s disease with and without psychiatric symptoms and as a function of medication use and type. Proportional hazard models were also used to individually assess the effect of the presence of individual symptoms or medication-induced symptoms on these same outcomes. The effects of individual symptoms and medications were assessed as time-dependent covariates.

A step-wise selection procedure was used to determine which psychiatric symptom or medication was independently associated with the outcome measures, after adjusting for possible confounding variables, such as sex, age, and
A total of 41 patients (23%) were taking at least one psychiatric medication at study entry; 22 (12%) took antidepressants, 16 (9%) took antipsychotic agents, and 11 (6%) took sedative/hypnotics. The relationship between the medication and the symptoms indicated that 18% of the patients had verbal or physical aggression, 23% had psychomotor agitation, 7% experienced wandering, 29% suffered from insomnia, 13% had major depression, and 26% experienced psychotic symptoms at baseline examination.

During follow-up, 18% of the patients were noted to be aggressive, 38.5% experienced psychomotor agitation, 19% wandering, 37% insomnia, 9% depression, and 38% psychosis. There were more patients treated than not treated who had aggression ($p < .001$), psychomotor agitation ($p < .001$), and depression ($p < .001$). At baseline examination, 17% of the 41 treated patients were taking two or more drugs, 7% were treated with antidepressants and antipsychotic agents, 7% with sedative/hypnotics and antidepressants, and 5% with three types of medication. During follow-up 43% took psychiatric
medications, 12% took antidepressants, 22% antipsychotics, and 13% sedative/hypnotics, 15% were treated with more than one psychiatric medication, 3% with antidepressants and sedative/hypnotic agents, 4% with antidepressants and antipsychotics, 8% with antipsychotic and sedative/hypnotics, 4% used more than one antipsychotic agent, 1% used more than one antidepressant, and 1% used more than one sedative/hypnotic agent.

Seventy-four (41%) of the 179 patients were institutionalized, 101 (56%) died, 55 (31%) reached BDRS score of 15 or higher, and 76 (42%) reached and MMSE score of 9 or lower. Cox proportional hazard models were used to examine the univariate effect of medication and individual psychiatric symptoms on the outcome variables. Of the psychiatric medications, antipsychotic agents were associated with time to BDRS scores of higher than 15 (RR = 2.02, p = .03) and with institutionalization (RR = 2.14, p = .02), sedative/hypnotics were associated with time to death (RR = 1.96, p = .05).

Psychosis, aggression, and agitation were all independently associated with time to institutionalization. Antipsychotic agent use was associated with BDRS scores of 15 or higher and use of sedative/hypnotics with time to death.
The number of patients with psychomotor agitation, insomnia, psychosis, and wandering increased during the follow-up, while the number with depression and aggressive behavior decreased. Psychotic symptoms were significant predictors of institutionalization and functional decline, but not of death.

Lopez et al. (1999) determined that one of the problems in the treatment of Alzheimer’s disease is the lack of agreement regarding who should be treated and noted most of the patients with behavioral problems were not being treated at study entry, except those with depression. As the disease progressed, more patients began treatment, especially those with agitation or aggression. Of the patients with psychotic symptoms, less than one half received any medication.

A second implication of the Lopez et al. (1999) study was the need to more closely examine what types of psychotropic medications should be used for what types of symptoms. Antidepressants were not only used to treat depression but also insomnia and episodes of nocturnal agitation. In the study antipsychotic agents and sedatives were used to treat agitation, wandering, aggression, and insomnia. This finding suggests that the choice of treatment may be guided by the most disturbing symptom.
The current researcher also was interested in the use of psychotropic medications used to treat Alzheimer’s disease and the progression of the disease process. The focus of the current research was to identify behaviors before and after beginning psychotropic medication therapy.

Although there were few studies available, the review of the literature provided valuable information regarding Alzheimer’s disease progression, behaviors, cognitive decline, and medications used to treat the symptoms. This study will serve to augment the limited research available regarding the use of psychotropic medications in Alzheimer’s disease.

**Summary**

In this review of the literature, the studies cited have shown that psychotropic medications do affect cognition and memory of Alzheimer’s disease patients. Castle (1999) examined nursing home size and funding status and found that nursing homes with a high Medicaid census used more psychotropic medications. In Berg and Dellagega’s (1996) study the long-term use of psychotropics was explored. Berg and Dellagega determined that elders who used psychotropic drugs had lower cognition scores overall. The researchers further concluded that as the subjects aged, more psychotropic
medications were prescribed. McShane and Keene (1997) found that the use of psychotropic medications appears to increase the rate of cognitive decline in elders. Jacobson and Winograd (1994) found differing opinions from nurses, physicians, and patients regarding the use of psychotropic medications and their effects.

Numerous studies have been published regarding the use of psychotropic medications and dementia of all types; however, few address the behavioral problems experienced by the recipients of such drugs. The behaviors of the Alzheimer's disease patient are complex in that they exist with and without medications. Thus, the current researcher determined that additional studies were needed to determine the behaviors exhibited by the Alzheimer's disease patient and the psychotropic medication they are receiving.
Chapter III

The Method

The purpose of this study was to describe behaviors of institutionalized Alzheimer’s disease patients before and after receiving psychotropic medication therapy. This chapter addresses the design of the study, including variables, research questions, and limitations. Also discussed in this chapter are setting, population and sample, methods of data collection, and data analysis.

Design of the Study

The researcher chose a descriptive comparative research design in order to identify behaviors of Alzheimer’s disease patients receiving psychotropic medications. The researcher used the sign in order to describe the variables of interest without manipulating them or implying causation for why the variables exist as they do. The Behavioral Assessment for Institutionalized Alzheimer’s Patients Tool was adapted from the MDS 2.0 User’s Manual (MDS) (1998) for nursing home patient assessment and was used to describe the behaviors of
Alzheimer’s disease patients before and after psychotropic medications were used.

Variables

The variables of interest for this study were the behaviors exhibited by Alzheimer’s disease patients and the psychotropic medications used to treat them as measured by the Behavioral Assessment for Institutionalized Alzheimer’s Patients. Intervening variables may have included the stage of disease clients were in when admitted to the nursing home and incongruence in the estimation of behaviors by the nurses as documented on the MDS (1998) for nursing home patient assessment.

Limitations

One limitation of the present study was the design since the researcher lacked control of the variables and the ability to manipulate the independent variable. However, utilizing this design with a chart review was appropriate as it allowed the researcher to gain information about Alzheimer’s disease behaviors as they were perceived by nurses in the patient’s natural environment.

The research also was limited by the complexity of the cognitively impaired individual. In an effort to
offset this limitation, the researcher adapted the Behavioral Assessment for Institutionalized Alzheimer’s Patients from the Minimum Data Set (MDS) for nursing home patients’ assessment. The MDS is the standard assessment tool for the institutionalized resident in the nursing home setting. Effort was made to operationally define the behaviors of the Alzheimer’s disease patients according to the MDS and to specifically identify the psychotropic medications used during the time MDS assessments were documented.

Another noted limitation for this study was the long-term care setting, which may not truly reflect behavioral symptoms of all Alzheimer’s disease patients receiving psychotropic medications but was chosen for access to the population. External validity refers to the ability to generalize the findings to other settings or samples (Polit & Hungler, 1999). Because the sample was drawn from one nursing home in one part of the United States, findings may not be applicable to the larger population of institutionalized or homebound elders with Alzheimer’s disease.

Setting, Population, and Sample

The setting for the study was a long-term care facility in a southeastern rural state. The facility was
chosen because of its geographical proximity to the researcher. The population included patients in the long-term care facilities with a diagnosis of Alzheimer’s disease who were receiving psychotropic medication therapy. In order to increase validity of the study, only one psychotropic drug was included in the study. The target sample (N = 40) consisted of patients in the long-term care facility. Participants were obtained through personal visits by the researcher to the long-term care facility who solicited help from the MDS nurse and the Director of Nursing.

Methods of Data Collection

Instrumentation. A researcher-designed Behavioral Assessment for Institutionalized Alzheimer’s Patients (see Appendix A) was used to determine the behaviors exhibited by Alzheimer’s disease patients before and after receiving psychotropic medications. This tool consisted of eight items, one to identify diagnosis, six to measure memory, cognitive skills, delirium-disordered thinking, indicators of depression, anxiety, and sad mood, change in mood, behavioral symptoms, and a final item to identify psychotropic medications received. Information gathered from each patient’s chart was recorded directly on the tool. A panel of experts assessed face validity.
A total of 6 scores by a rating scale were obtained from the Behavioral Assessment for Institutionalized Alzheimer’s Patients. Mean scores were used to determine the behaviors of the subjects before and after psychotropic medication therapy.

Procedure. Permission was obtained to conduct the study from the Committee on Use of Human Subjects in Experimentation from Mississippi University for Women (see Appendix B). Permission was also obtained from the institution utilized in the study (see Appendix C). The MDS nurse and the Director of Nursing provided patient charts relevant to the study, which contained diagnosis of Alzheimer’s disease and psychotropic medication use. The responsible party of each subject was contacted, and permission was granted to review each subject’s chart (see Appendix D). Patient names or chart numbers were not included on the Behavioral Assessment for Institutionalized Alzheimer’s Patients in order to assure confidentiality. Information was recorded on the assessment for statistical analysis.

Method of Data Analysis

Statistical results were examined to identify the strength of relationship between the variables. Data were gathered and grouped by behaviors before and after
psychotropic medication therapy. Results from the Behavioral Assessment for Institutionalized Alzheimer's Patients were analyzed using the t test. Analysis using the t test is commonly used in situations in which a single group yields pretreatment and post-treatment scores (Polit & Hungler, 1999).

Summary

Chapter III described empiricalization of this research study, which explored the behaviors of the Alzheimer’s disease patients receiving psychotropic medication therapy. The design of the study, including variables, research questions, and limitations to the study were addressed. The setting, population, and sample of the study were discussed. Methods of data collection, including instrumentation and procedures, were also discussed. Finally, data analysis was explained.
Chapter IV

The Findings

The purpose of this study was to identify the effects of psychotropic medications on the behaviors of the institutionalized Alzheimer’s disease patient. A descriptive study was implemented to describe the behaviors exhibited by the Alzheimer’s disease patient before and after receiving psychotropic medications. Empiricalization of the study is explained in this chapter. A description of the participants is presented, followed by outcomes of data analysis related to the research question.

Description of the Sample

The sample (N = 33) consisted of Alzheimer’s disease patients in a long-term care setting receiving psychotropic medication therapy. Of the participants, 26.5% were male and 73.5% were female. Each participant had a diagnosis of Alzheimer’s disease and received at least one psychotropic medication, with 29.4% receiving antidepressants, 32.4% receiving antipsychotics, 17.6%
receiving sedative/hypnotics, and 20.6% receiving anxiolytics.

The long-term care facility chosen for the study housed 125 residents. The sample (N = 33) was the total number of residents who met the criteria of diagnosis and medication. All of the participants had been in the facility for at least 6 months.

Results of Data Analysis

One hypothesis guided this study. The hypothesis was as follows: There will be no significant difference in the selected behaviors of institutionalized Alzheimer’s disease patients before and after receiving psychotropic medication therapy. A t test was used to determine the significance of any difference in behavior for each selected behavior on the Behavioral Assessment for Institutionalized Alzheimer’s Patients. The selected behaviors analyzed were memory/recall ability, cognitive skills, delirium-periodic disordered thinking, indicators of depression, anxiety and sad mood, and behavioral symptoms.

For memory there was a significant decline after taking psychotropic medications. The majority of the participants went from the ability to remember four or more items to remembering none. The items of memory and recall included recognition of current season, location of
room, staff names and faces, and nursing home placement. These findings are presented in Table 1.

Table 1

Memory and Recall Behaviors of Alzheimer’s Disease Patients Using a t Test

<table>
<thead>
<tr>
<th>Memory/Recall</th>
<th>df</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No items recalled</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>1.47</td>
<td>1.002</td>
<td>2.45</td>
<td>.02*</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>1.03</td>
<td>1.060</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05.

The cognitive skills for daily decision making ranged from independent decision making to severely impaired decision making. Independent decision making indicated that the participants made consistent and reasonable decisions. Modified independence indicated some difficulty in new situations while moderately impaired decision making required cues or supervision. Severely impaired decision making indicated that the participant rarely or never made decisions. The findings were significant in that there was an overall increase in cognitive function of the Alzheimer’s disease patient after receiving
psychotropic medications. These findings are presented in Table 2.

Table 2

Cognitive Skills for Daily Decision Making of Alzheimer’s Disease Patients Using a t Test

<table>
<thead>
<tr>
<th>Cognitive function</th>
<th>df</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision-making level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>1.76</td>
<td>.99</td>
<td>-3.94</td>
<td>.000*</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>2.18</td>
<td>.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05.

In the area of delirium-periodic disordered thinking/awareness, there was a significant increase in periods of restlessness, fidgeting, and repetitive physical movements of the Alzheimer’s disease patients receiving psychotropic medications. The areas in which there was no decline included attention span, periods of altered perception or awareness of surroundings, episodes of disorganized speech, periods of lethargy, and varying mental function. There was, however, an increase in periods of restlessness which included fidgeting or picking at skin, clothing, napkins, etc., frequent
position changes, repetitive physical movements, wandering, pacing, or calling out. These findings are presented in Table 3.

Table 3

<table>
<thead>
<tr>
<th>Indicator</th>
<th>df</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easily distracted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.471</td>
<td>.507</td>
<td>-.297</td>
<td>.768</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.500</td>
<td>.510</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periods of altered perception</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.320</td>
<td>.470</td>
<td>-1.710</td>
<td>.096</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.470</td>
<td>.510</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Episodes of disorganized speech</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.260</td>
<td>.450</td>
<td>-1.000</td>
<td>.325</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.350</td>
<td>.490</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periods of restlessness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.260</td>
<td>.450</td>
<td>-2.260</td>
<td>.030*</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.500</td>
<td>.510</td>
<td></td>
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</table>

(table continues)
Table 3 (continued)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>df</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periods of lethargy</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.150</td>
<td>.440</td>
<td>-.373</td>
<td>.711</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.180</td>
<td>.390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental function</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>varying over the course of the day</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.350</td>
<td>.490</td>
<td>-1.710</td>
<td>.096</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.500</td>
<td>.510</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P ≤ .05.

For indicators of depression, anxiety, or sad mood there was a significant increase in unrealistic fears, such as fear of being left alone, abandoned, or being with others. There was also an increase in the behavior of repetitive questions, such as “where do I go” and “what do I do?” and crying and tearfulness of the Alzheimer’s disease patient receiving psychotropic medications also escalated. There was no increase in the behaviors of negative statements and verbalizations such as calling “help.” There were no indications of an increase in anger with self and others, self-deprecation, or repetitive health complaints. The findings are presented in Table 4.
Table 4

Indicators of Depression, Anxiety, and Sad Mood of Alzheimer’s Disease Patients Using a t Test

<table>
<thead>
<tr>
<th>Indicator</th>
<th>df</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative statements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>-.588</td>
<td>.239</td>
<td>-.422</td>
<td>.661</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>-.822</td>
<td>.290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetitive questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>-.294</td>
<td>.170</td>
<td>-2.98</td>
<td>.044*</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.150</td>
<td>.360</td>
<td></td>
<td></td>
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<tr>
<td>Repetitive verbalizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.120</td>
<td>.330</td>
<td>-1.96</td>
<td>.058</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.260</td>
<td>.450</td>
<td></td>
<td></td>
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<tr>
<td>Persistent anger</td>
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</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.120</td>
<td>.410</td>
<td>-.702</td>
<td>.488</td>
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<tr>
<td>Posttest</td>
<td>33</td>
<td>.180</td>
<td>.390</td>
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<tr>
<td>Self-deprecation</td>
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<tr>
<td>Pretest</td>
<td>33</td>
<td>-.294</td>
<td>.170</td>
<td>-1.000</td>
<td>.325</td>
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<tr>
<td>Posttest</td>
<td>33</td>
<td>-.882</td>
<td>.290</td>
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</table>

(table continues)
Table 4 (continued)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>df</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrealistic fears</td>
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<td></td>
</tr>
<tr>
<td>Pretest</td>
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<td>-.294</td>
<td>.170</td>
<td>-2.500</td>
<td>.017*</td>
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<tr>
<td>Posttest</td>
<td>33</td>
<td>.240</td>
<td>.500</td>
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<tr>
<td>Repetitive health complaints</td>
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</tr>
<tr>
<td>Pretest</td>
<td>33</td>
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<td>.330</td>
<td>.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.120</td>
<td>.410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crying/tearfulness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest</td>
<td>33</td>
<td>.210</td>
<td>.410</td>
<td>-2.23</td>
<td>.033*</td>
</tr>
<tr>
<td>Posttest</td>
<td>33</td>
<td>.410</td>
<td>.560</td>
<td></td>
<td></td>
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</tbody>
</table>

*<.05.

For negative behavioral symptoms of the Alzheimer's disease patient receiving psychotropic medications, the data analysis revealed that there was an increase in physically abusive behavior, such as hitting, shoving, scratching, and sexual abuse of others. There was no increase in the behaviors of wandering with no rational purpose, verbal abuse, such as threatening other residents, and socially disruptive behavior, such as disrobing in public. The findings are presented in Table 5.
### Table 5

**Behavioral Symptoms of Alzheimer's Disease Patients Using a t Test**

<table>
<thead>
<tr>
<th>Behavior symptom</th>
<th>df</th>
<th>M</th>
<th>SD</th>
<th>t</th>
<th>p*</th>
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<tr>
<td>Wandering</td>
<td>Pretest</td>
<td>33</td>
<td>.265</td>
<td>.567</td>
<td>-1.75</td>
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<tr>
<td></td>
<td>Posttest</td>
<td>33</td>
<td>.500</td>
<td>.860</td>
<td></td>
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<tr>
<td>Verbal abuse</td>
<td>Pretest</td>
<td>33</td>
<td>.240</td>
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<tr>
<td></td>
<td>Posttest</td>
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<td>.490</td>
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<tr>
<td>Physical abuse</td>
<td>Pretest</td>
<td>33</td>
<td>.180</td>
<td>.390</td>
<td>-2.26</td>
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<tr>
<td></td>
<td>Posttest</td>
<td>33</td>
<td>.410</td>
<td>.610</td>
<td></td>
</tr>
<tr>
<td>Socially inappropriate</td>
<td>behavior</td>
<td>Pretest</td>
<td>33</td>
<td>.120</td>
<td>.330</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>33</td>
<td>.240</td>
<td>.430</td>
<td></td>
</tr>
</tbody>
</table>

*< .05.

Since there was a significant change in areas of all behaviors assessed, the researcher rejected the null hypothesis.

**Summary**

The results of the data analysis were described in Chapter IV. The sample including demographics were
included. Each item of the Behavioral Assessment for Institutionalized Alzheimer’s Patients was statistically analyzed to determine if any significance could be identified. Results from statistical analysis of Alzheimer’s disease patients’ behaviors and psychotropic medications showed a significant correlation. The initiation of psychotropic medications did adversely affect the behavior of the Alzheimer’s disease patient. Chapter V will provide an outcome of the findings including discussion, conclusions, implications, and recommendations.
Chapter V

The Outcomes

An explanation of the findings of this study in relation to the research problem is summarized and discussed in this chapter. Conclusions are drawn, implications for nursing are examined, and recommendations for nursing science are made.

Psychotropic medications are frequently used to treat the behavioral symptoms of the Alzheimer’s disease patients in the long-term care setting. The use of psychotropic medications in the longer-term care setting has been presented in the literature; however, research relating to psychotropic medications and institutionalized Alzheimer’s disease patients is limited. This descriptive study examined the use of psychotropic medications on the behaviors of institutionalized Alzheimer’s disease patients. Data were collected using the researcher-adapted Behavioral Assessment for Institutionalized Alzheimer’s Patients. Johnson’s Behavioral Systems Model provided the theoretical framework.
Summary of Findings

A total of 33 Alzheimer’s disease patients were studied with 26.5% male and 73.5% female. Psychotropic medications identified were antidepressants, antipsychotics, sedative/hypnotics, and anxiolytics. The null hypothesis that guided this study was as follows: There will be no significant difference in the behaviors of institutionalized Alzheimer’s disease patients before and after receiving psychotropic medication therapy. The six categories measured were memory/recall ability, cognitive skills for daily decision making, indicators of delirium-periodic disordered thinking/awareness, indicators of depression, anxiety, sad mood, change in mood, and behavioral symptoms. The findings revealed a significant change in each of the six categories; therefore, the null hypothesis was rejected.

Discussion

Findings revealed that the memory/recall ability of the Alzheimer’s disease patient declined after the introduction of psychototropic medications. The Behavioral Assessment for Institutionalized Alzheimer’s Patients measured the number of items remembered. Current season, location of room, staff names or faces, and awareness of being in a nursing home were the elements of the
memory/recall ability section. The study sought to reveal how many of these items were remembered or if none were remembered. The memory loss exhibited by the Alzheimer's disease patients receiving psychotropic medications could have been due to side effects from the drugs, such as apathy, anxiety, drowsiness, or confusion. Although the normal progression of Alzheimer's disease is a gradual worsening in memory, psychotropic drugs may potentiate memory loss due to the fact that the elderly do not metabolize drugs as effectively as younger people.

The cognitive skills for daily decision-making ability increased in the patients. The Behavioral Assessment for Institutionalized Alzheimer’s Patients measured decisions regarding the tasks of daily life. Specific findings included the following:

1. Modified independence was identified as some difficulty in new situations only.

2. Moderate cognitive impairment required cues or supervision for adequate decision making.

3. Severe cognitive impairment was indicated by decisions being rarely or never made.

The finding of an increase in cognitive decision making in the light of worsening memory was surprising. This finding may be explained by the fact that although
the memory may be worsened for the Alzheimer's disease patient with the use of psychotropic drugs there may be an increase in concentration. Even though the patient may not be aware of the season or nursing home placement, clothing may be selected or food likes or dislikes may be favored, i.e., when asked, “Which pair of pants do you want to wear?” the patient may choose one. This would indicate an increase in cognition.

Berg and Dellagega (1996) and McShane and Keene (1997) seem to contradict the current research in the area of cognition. Berg and Dellagega explored factors that affected cognitive function of elders including psychotropic medications. The results of the study revealed that elders who used psychotropic medications had significantly lower cognitive scores than elders who did not use psychotropic medications. McShane and Keene found that demented patients receiving psychotropic medications had more cognition problems than those who were not receiving such drugs. Findings revealed that physical aggression, hallucinations, and persecutory ideas were present in these patients. The findings of the current research indicate an increase in cognitive function after receiving psychotropic medications.
The indicators of delirium-periodic disordered thinking/awareness measured whether or not the behavior was present and appeared different from the residents’ usual functioning. The following items are examples of the indicators that were measured:

1. Easily distracted indicated difficulty paying attention or easily sidetracked.

2. Periods of altered perception or awareness of surroundings as demonstrated by moving lips, talking to someone who is not present, belief that the patient is somewhere else, and confusion between night and day.

3. Episodes of disorganized speech were determined by fidgeting or picking at skin or clothing, frequent position changes, repetitive physical movements, wandering, pacing, or calling out.

4. Sluggishness, staring, difficult to arouse, and little body movements indicated periods of lethargy.

5. The changes in mental function of the Alzheimer’s disease patient, such as deterioration in memory as the day goes on, indicated mental function varying over the course of the day.

The findings revealed that the episodes of delirium-periodic thinking/awareness were increased as indicated by an increase in periods of restlessness. The periods of
restlessness may be explained by the fact that the increased cognition may have triggered restlessness in the patient receiving psychotropic medications because the patient may have been more cognizant to some facts as previously described. The increased restlessness may have also been psychotropic drug-induced anxiety. This finding is consistent with the findings of Lopez et al. (1999) which indicated that psychotropic medications cause an increase in psychomotor movements.

The episodes of depression, anxiety, and sad mood were measured from not occurring to occurring within the last 30 days or occurring 6 to 7 times a week. The behaviors that indicated depression, anxiety, and sad mood were as follows:

1. Statement such as “nothing matters,” “would rather be dead,” and “what’s the use?”

2. Repetitive questions, such as “Where do I go?” and “What do I do?”

3. Calling out for help or other repetitive verbalizations.

4. Persistent anger with self or others from nursing home placement to anger at care received.

5. Self-deprecation statements of unworthiness.
6. Expression of what appears to be unrealistic fears, fears of being abandoned, left alone, or of being with others.

7. Repetitive health complaints and obsessive concern with body functions.

8. Crying and tearfulness.

The findings indicate an increase in the area of unrealistic fear. These fears included fear of being abandoned, left alone, and also fear of being with others. Again, this may also be correlated to the increase in cognition because of an interest in awareness and thought but at the same time decrease in memory may provoke feelings of fear. The fear of being with others, such as health care professionals, may ignite fears of the unknown (i.e., procedures and medications) and the relation of the possibility of painful stimuli. The fear of being with others may also include family members. The patient may experience feeling of guilt, shame, or frustration which may appear as fear during times of family confrontation.

The last item measured was behavioral symptoms which included wandering, verbal abuse, physical abuse to staff or other residents, and socially inappropriate behavior such as disrobing in public. A range of the behavior not occurring in the last 7 days to the behavior occurring
daily were used to measure these areas. The findings revealed an increase in physical abuse, such as hitting and scratching of staff members, other residents, or family. This also included sexual abuse of staff members, such as inappropriate touching. The increase in physical abuse may be correlated to the increase in unrealistic fears. Fear can provoke many reactions, and many times Alzheimer's disease patients respond physically due to their inability to adequately communicate, which can be interpreted as abuse from the caregiver or family member.

Findings from the current study imply that the variable of psychotropic medications do adversely affect the behaviors of the Alzheimer's disease patient. This finding may be compared with previous research conducted by Lopez et al. (1999). The study examined the use of psychotropic medications and the progression of behaviors of the Alzheimer's disease patient and indicated that behaviors, such as verbal abuse, physical aggression, and wandering, increased with psychotropic medication use. Results of the current study supplement these findings with a significant relationship between behaviors of the Alzheimer's disease patient and psychotropic medication.
Conclusions

Several conclusions can be derived from the findings in this study. This researcher concluded that psychotropic medications significantly impact behaviors of the Alzheimer’s disease patient. Many of the side effects of psychotropic medications mimic the symptoms exhibited by the Alzheimer’s disease patient. It is very difficult to distinguish between the drug effects and the natural course of the disease process; therefore, it is the hope of the current researcher that the study will stimulate more research in Alzheimer’s disease and the current treatments being used to control adverse behaviors.

Although the current researcher believes that psychotropic medications increased the negative behaviors of the Alzheimer’s disease patient, the fact that the normal progression of Alzheimer’s disease also may increase negative behavior and cannot be ignored. As the Alzheimer’s disease patient progresses through the course of the disease, they exhibit many disturbing behaviors. These behaviors include wandering, agitation, and physical abuse. These are the main reasons Alzheimer’s disease patients are placed on psychotropic medications. Although the findings did not reveal an increase in wandering, they did indicate an increase in physical abuse and agitated
type behaviors. The current researcher found the adverse effects outweighed the benefits of psychotropic medications in the use of Alzheimer’s disease for the patients in this study.

Implications for Nursing

A number of implications for nursing science were derived from this study. Implications are suggested for research, theory, practice, and education.

Research. Limited studies were found that examined psychiatric drug therapy and institutionalized Alzheimer’s disease patients. Therefore, more research is needed to determine the effects of psychotropic drug therapy on Alzheimer’s disease. Additionally, research should investigate Alzheimer’s disease behaviors and the use of medications to control them. The findings from such research could impact the care of Alzheimer’s disease patients in long-term care facilities.

Theory. This study effectively utilized Johnson’s Behavioral Systems Model as a theoretical framework. The concepts of maintenance and balance of functioning through the behavioral system, equilibrium, tension, and stressors were validated. The concepts of Johnson’s model can be readily applied to the care of the Alzheimer’s disease patient as the Alzheimer’s disease patient is constantly
striving to maintain equilibrium and balance within the system. This study adds to the data base of research on Alzheimer’s disease patients utilizing a systems model as a framework.

Practice. In providing care to elders, nurse practitioners must be aware of the impact of Alzheimer’s disease and the medications used to treat behaviors. The nurse practitioner could use the results of this study to enhance supportive care of the Alzheimer’s disease patient. In addition, being aware of the negative effects of psychotropic medications might assist caregivers in anticipation of negative behaviors and risks in these patients such as unwanted falls and injuries.

Education. This research study contributed to the existing body of nursing knowledge regarding the effects of psychotropic medications on Alzheimer’s disease patients. As the elder population increases, it is essential that nurse practitioners be prepared to respond to the special needs of the Alzheimer’s disease patient. The findings of this study indicate Alzheimer’s disease patients receiving psychotropic medications exhibited an increase in negative behaviors. Education of nursing students should include information regarding the special needs of Alzheimer’s disease patients. The health care
risks for these patients can be prevented if awareness of the detrimental effects of drug therapy is anticipated.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Replication of a similar study with a larger sample to evaluate the effects of psychotropic medications on institutionalized Alzheimer’s disease patients’ behaviors.

2. Refinement of the Behavioral Assessment for Institutionalized Alzheimer’s Patients to more fully measure the behaviors exhibited.

3. Education of personnel at all levels regarding the behaviors of the Alzheimer’s disease patient and psychotropic medications used to treat them.

4. Comparison of the effects of different psychotropic medications on the behaviors of Alzheimer’s disease patients.
References


APPENDIX A

BEHAVIORAL ASSESSMENT FOR INSTITUTIONALIZED
ALZHEIMER’S PATIENTS
Behavioral Assessment for Institutionalized Alzheimer’s Patients

1. Diagnoses

2. Memory/recall ability
   (code for memory/recall)
   ___ 0. Current season
   ___ 1. Location of room
   ___ 2. Staff names/faces
   ___ 3. That he/she is in a nursing home
   ___ 4. None of the above are recalled
   ___ 5. Two or more of the above are recalled

3. Cognitive Skills for daily decision-making
   (made decisions regarding tasks of daily life)
   ___ 0. Independent--decisions consistent and reasonable
   ___ 1. Modified independence--some difficulty in new situations only
   ___ 2. Moderately impaired--decisions poor: cues/supervision required
   ___ 3. Severely impaired--never/rarely made decisions

4. Indicators of delirium--periodic disordered thinking/awareness
   (Code for behavior occurring in the last 7 days)
   ___ 0. Behavior not present
   ___ 1. Behavior present
   ___ 2. Behavior present--appears different from resident’s usual functioning
   ___ a. Easily distracted (difficulty paying attention: gets sidetracked)
   ___ b. Periods of altered perception or awareness of surroundings
   (moves lips or talks to someone who is not present/believes he is somewhere else: confuses night and day)
   ___ c. Episodes of disorganized speech (incoherent, nonsensical, irrelevant, or rambling from subject to subject; loses train of thought)
   ___ d. Periods of restlessness (fidgeting or picking at skin, clothing, napkins, etc.; frequent position changes; repetitive physical movements, wandering, pacing, or calling out)
   ___ e. Periods of lethargy (sluggishness, staring into space, difficult to arouse, little body movement)
   ___ f. Mental function varies over the course of the day (sometimes better, sometimes worse, behaviors sometimes present, sometimes not)
5. Indicators of depression, anxiety, sad mood
   (Code for indicators observed in the last 30 days)
   ____ 0. Indicator not exhibited in the last 30 days
   ____ 1. Indicator of this type exhibited up to 5 days/week
   ____ 2. Indicator of this type exhibited daily or almost daily
       6-7 days/week
   _____ a. Resident makes negative statements (Nothing matters, Would rather be dead, What’s the use)
   _____ b. Repetitive questions ("Where do I go, What do I do?")
   _____ c. Repetitive verbalizations (calling out for help)
   _____ d. Persistent anger with self or others (easily annoyed, anger at placement in nursing home, anger at care received)
   _____ e. Self-deprecation ("I am nothing; I am of no use to anyone")
   _____ f. Expression of what appears to be unrealistic fears (fear of being abandoned, left alone, being with others)
   _____ g. Repetitive health complaints (seeks medical attention, obsessive concern with body functions)
   _____ h. Crying, tearfulness

6. Change in mood
   (Resident’s mood status has changed as compared to status of 90 days ago)
   _____ 0. No change
   _____ 1. Improved
   _____ 2. Deteriorated

7. Behavioral symptoms
   (Behavioral symptom frequency in last 7 days)
   _____ 0. Behavior not exhibited in last 7 days
   _____ 1. Behavior of this type occurred 1 to 3 days in last 7 days
   _____ 2. Behavior of this type occurred 4 to 6 days, but less than daily
   _____ 3. Behavior of this type occurred daily
   _____ a. Wandering (moved with no rational purpose, seemingly oblivious to needs or safety)
   _____ b. Verbally abusive behavioral symptoms (others were threatened, screamed at, cursed at)
   _____ c. Physically abusive behavioral symptoms (others were hit, shoved, scratched, sexually abused)
   _____ d. Socially inappropriate/disruptive behavioral symptoms (made disruptive sounds, noisiness, screaming, self-abusive acts, sexual behavior, or disrobing in public)

8. Medications
   (List all psychotropic medications the patient is currently on. Included scheduled psychotropics and PRN psychotropics)

<table>
<thead>
<tr>
<th>Medication Name</th>
<th>Dose Ordered</th>
<th>Route</th>
<th>Frequency</th>
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Adapted from the Minimum Data Set for nursing home residents.
APPENDIX B

APPROVAL OF MISSISSIPPI UNIVERSITY FOR WOMEN’S COMMITTEE ON USE OF HUMAN SUBJECTS IN EXPERIMENTATION
April 26, 2000

Ms. Mary Beth McKinney
P. O. Box W-910
Campus

Dear Ms. McKinney:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research conditionally, as it needs to review a proposed consent form from parents or legal guardians as well as the facility. These items were omitted from your proposal. The proposal itself is not objectionable provided the requested attachments are submitted.

I wish you much success in your research.

Sincerely,

Sheila V. Adams, Ed.D.
Interim Vice President
for Academic Affairs

cc: Mr. Jim Davidson
Dr. Melinda Rush
APPENDIX C

PERMISSION TO CONDUCT STUDY
May 12, 2000

Mary Beth McKinney
229 County Road 152
Corinty, Ms 38834

Dear Mary Beth,

I am happy to inform you that we will be glad to have you conduct your study at our facility. Please be aware of patient confidentiality issues. We will be interested in the findings of your study.

Sincerely,

Richard Atkins, Adm
APPENDIX D

LETTER REQUESTING PERMISSION TO CONDUCT STUDY
ATTENTION: Richard Atkins

Dear Mr. Atkins:

As a graduate student at Mississippi University for Women, I will be conducting a research study. In the course of my experience in geriatrics, I have become aware of the number of people affected by Alzheimer’s disease. In my proposed research study, I plan to study Alzheimer’s patients and the behaviors they exhibit. I would like to conduct my research at your facility through a chart review. There will be no actual patient contact during this study. This study is strictly confidential and in no way would the facility name or resident name be used. I will use a numbering system for identification. As the guardian of the residents I am asking your permission to conduct my research study in your facility.

Please share this with others in administration and let me know if it meets with your approval. If there are any questions regarding this study, please feel free to contact me. Thanks for your time in reviewing this.

Sincerely,

Mary Beth McKinney, RN, C, BSN