The Effect of Restraint Reduction, in the Geriatric Population, on Significant Injury and Quality of Life

Susan Rouse-Bane

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The Effect of Restraint Reduction, in the Geriatric Population, on Significant Injury and Quality of Life

by

Susan Rouse-Bane

A Thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Health Services Administration Cardinal Stritch College May 1991
We approve the thesis of Susan Rouse-Bane.

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ABSTRACT

The researcher identified the specific research question as follows: What is the effect of physical and chemical restraint reduction in the geriatric population, on significant injury and quality of life? For purposes of this study, significant injury was defined as fractures, sutures or a permanent change in the resident’s condition. Quality of life was defined in terms of the resident’s functional abilities. Both of these variables involved a comparison of data, pre and post restraint reduction.

Consent for participation in this research study was obtained from the resident or their power of attorney. The restraint reduction period extended over a period of approximately 6-7 months. Data concerning significant injury was collected through the use of a tally sheet (log) of resident incidents. Resident incidents were monitored closely during the restraint reduction period, and were compared to the incident rate pre restraint reduction. Quality of life data was collected through the use of the OARS Multidimensional Functional Assessment Questionnaire. The questionnaire results were compared pre and post.
restraint reduction.

The amount of restraint reduction was analyzed with the use of Chi Square. Significant injury data was analyzed utilizing the raw data, due to the limited time frame of this study. Quality of life data was analyzed with the use of the paired t-test.

The Chi Square result indicated that a statistically significant amount of physical restraint reduction had occurred during the study. The significant injury data suggested that there was no increase in the rate of significant injury post restraint reduction, although this was not analyzed statistically. The paired t-test results indicated a statistically significant positive change in residents quality of life.

The researcher's results were in agreement with the available research to date (i.e. 1990), regarding the effects of restraint reduction on the geriatric population. Further research in the area of restraint use with the geriatric population is needed. The researcher's literature review to date of 1990 indicated a lack of available research in this area. The literature review was also lacking in the area of alternatives to restraint use.
ACKNOWLEDGMENTS

This thesis is not the result of my efforts alone. I wish to express my gratitude to those who have lent their support and encouragement throughout the many phases of this research project.

My husband, Michael and daughter, Stephanie, for their support and patience in allowing me the time required to complete this project.

My Mother and Father who have always encouraged and supported me to pursue my goals.

An inspiration, Janet I. Fine MS, RN, CNAA. My sincere thanks for all of your encouragement, guidance and expertise throughout this project.

Lastly, I thank all of the staff at this Midwestern Nursing Home for their patience and cooperation while participating in this research project.
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CHAPTER I
INTRODUCTION

Purpose

According to Evans and Strumpf (1989), everyday in the United States over 500,000 elderly patients in hospitals and nursing homes had been restrained to their beds and chairs. The practice of applying physical restraints had become increasingly common in the care of the elderly, in hospitals and nursing homes. Evans and Strumpf (1989), reported the prevalence of restraint use in nursing homes to be between 25% and 84.6%. The problem for long term care providers had become the decision whether or not to utilize physical restraints, and under which conditions.

The researcher had chosen to study the effect of physical and chemical restraint reduction in the geriatric population, on significant injury and quality of life. The goals of this research were to devise a restraint reduction program for a midwestern nursing home, implement this plan, and after several months, study the effect on significant injury and quality of life. The effects were looked at through a comparison of data pre and post restraint reduction.
The Omnibus Budget Reconciliation Act (OBRA), of 1987, related "freedom from physical and chemical restraints," to enhancing the patient's quality of life. Research in this area is not well documented in the literature at the time of this study. A study done by Folmar and Wilson (1989), focused on the effects of physical restraints on social behavior of residents in a skilled nursing facility. Social behavior was evaluated by categorizing the residents' social interactions into six different levels. Folmar and Wilson then compared the social interactions of restrained versus unrestrained residents. Their findings concluded that the lowest level of social functioning was displayed by the restrained residents.

The results of Folmar and Wilson's study (1989), suggested that patients with conditions such as cognitive decline, psychiatric problems and physical deterioration are related to decreased social interaction. These conditions often lead to behaviors for which physical restraints are commonly used. According to Folmar and Wilson (1989), the use of restraints then seems to lead to further deterioration of social skills.

Does the use of physical restraints actually
prevent injury? The literature since 1980 related to restraint usage suggested that it did not. Halpert and Connors (1986), suggested that risk of injury from falls out of bed increased when restraints were applied and the application of restraints seldom eliminated the risk of injury. Many patients managed to remove their restraints and numerous falls, especially from wheelchairs resulted from attempts to remove restraints.

A study done by Evans and Strumpf (1989), found that the risk of serious injury decreased without the use of physical restraints. The study showed that the most severe injuries were found with patients who had struggled to remove their restraint and then had fallen, as a result of climbing over the bed siderails.

Problem

The researcher identified the specific research question as follows: What is the effect of physical and chemical restraint reduction in the geriatric population, on significant injury and quality of life?

On October 1, 1990, the rules and regulations specified by the Omnibus Budget Reconciliation Act
(OBRA) 1987, had a major impact on physical and chemical restraint usage in the elderly population. During the early 1990's, there was not a large amount of research done dealing with restraint usage and its effects on the geriatric population. OBRA's (1987) regulations focused on when restraints were used, how long the patient was in the restraint, and what interventions were attempted prior to applying the restraint.

For purposes of this study, the researcher identified "restraint," as the use of physical and, or chemical devices. The OBRA (1987) regulations defined physical restraints as:

"any manual method or physical or mechanical device, material, or equipment attached or adjacent to the resident's body that the individual cannot remove easily which restricts freedom of movement or normal access to one's body."

Specific examples of restraining devices used in this study included; arm restraints, hand mitts, vest restraints, pelvic restraints, wheelchair safety bars, and geri-chairs.

Chemical restraints were defined by OBRA as the
use of antipsychotic medications. OBRA (1987), stated that:

"Based on a comprehensive assessment of a resident, the facility must ensure that (1) residents who have not used antipsychotic drugs are not given these drugs unless antipsychotic drug therapy is necessary to treat a specific condition, and (2) residents who use antipsychotic drugs receive gradual dose reductions, drug holidays or behavioral programming, unless clinically contraindicated, in an effort to discontinue these drugs."

For purposes of this study, all nursing home residents that were utilizing antipsychotic medications were included in this study. These types of physical and chemical restraints were reviewed by OBRA (1987) in depth. The 1987 OBRA regulations were put into effect in 1990.

Evans and Strumpf (1989), raised the question; Why are restraints utilized so frequently in the United States compared with other countries? More and more nursing home personnel around the country have been asking that question. The long term care industry had been considering alternative strategies to restraint use. The focus on alternative strategies to restraint use was largely due to the stand taken by the Omnibus Budget Reconciliation Act (OBRA), 1987. Nursing homes operating under federal and state regulations have
begun to develop policies and procedures regarding restraint use. These policies and procedures had been developed in an attempt to decrease restraint use, and possibly create restraint free environments for the geriatric population.

Scope of the Research

The scope of this research study defined the dependent variables as: (1) significant injury, which was further defined as fractures, sutures, or a permanent change in the patient's condition; (2) quality of life, as perceived by the resident's case manager (primary nurse).

The belief that physical restraints are applied to prevent injury is why significant injury was chosen as one of the dependent variables. According to Halpert and Connors (1986), the risk of injury from falls out of bed increased when restraints were applied and the application of restraints seldom eliminated the risk of injury. Numerous falls have resulted as patients attempt to remove the restraining device.

The rationale for choosing quality of life as the second dependent variable was related to the
terminology used by OBRA. OBRA (1987), related "freedom from physical and chemical restraints," to enhancing the patient's quality of life. There was a lack of research available which substantiated this viewpoint by OBRA. The researcher looked at quality of life in terms of changes in the following: social contact, withdrawal from surroundings and less participation in activities. Decreased ability to perform activities of daily living was also analyzed. Activities of daily living included any changes in mobility, toileting, bathing, dressing, eating, or changes in sleep patterns.

The study population included residents 70 years of age or greater who were utilizing physical and or chemical restraints. The study population resided in a 61 bed midwestern nursing home. Following identification of the potential restraint reduction residents, the family member or Power of Attorney for each resident was contacted to provide consent for participation in the study and potential restraint reduction.

The study took place in a 61 bed midwestern nursing home in 1990. It extended over a period of approximately 6-7 months. The 6-7 month period of
time included the explanation of the study to families and power of attorneys. Initial explanation of the study was done through the mailing of an informational letter to all of the residents' power of attorneys. The letter was then followed up with a family meeting for all of the potential restraint reduction residents. Further explanation was given to family members at this meeting and also on an individual basis. After obtaining consent for participation in the study, interdisciplinary meetings were held weekly. These meetings were held to determine which residents were eligible for restraint reduction and what alternative measures could be used to achieve care plan goals. The actual restraint reduction attempts occurred as a result of the weekly interdisciplinary meetings. Pre and post restraint reduction questionnaires were completed to analyze changes in residents' quality of life.

Data collection was done through chart reviews, accident report reviews and analysis of completed questionnaires. Questionnaire data was not identified by any characteristics that could lead to identification of the individual patient. All data collected pertaining to specific individuals remained confiden-
tial with the researcher. Confidentiality of the research results was explained to the family members and power of attorneys when consent for participation was obtained.

Theoretical Framework

Basic assumptions underlying this research study had been identified as follows: (1) It had been hypothesized that physical and chemical restraint reduction would decrease significant injury rates; (2) It had been hypothesized that physical and chemical restraint reduction would increase patient's quality of life.

The assumption that physical and chemical restraint reduction would decrease significant injury rates was partially based on a study done by Evans and Strumpf (1989). Evans and Strumpf (1989) found that the risk of serious injury decreased without the use of physical restraints. They further discovered that patients did fall more without the use of physical restraints, but there was no significant increase in serious injuries related to those falls.

The development of OBRA in 1987 and a study done by Folmar and Wilson (1989), was the basis for the
assumption that physical and chemical restraint reduction would increase quality of life. In their study an emphasis was on the effects of physical restraint use on social behavior of residents in a skilled nursing facility. They concluded that the lowest level of social functioning was displayed by the restrained residents and that the use of physical restraints led to further deterioration of social skills. The deterioration of social functioning can then have an effect on physical functioning of the individual and their level of participation in activities of daily living. The activities of daily living analyzed in the quality of life aspect of this study included the following: the resident's level of participation in mobility, toileting, bathing, dressing, eating and changes in sleep patterns.
CHAPTER II
LITERATURE REVIEW

Introduction

The researcher had chosen to study the effect of physical and chemical restraint reduction in the geriatric population, on significant injury and quality of life. The goals of this research were threefold; (1) to devise a restraint reduction program for a midwestern nursing home, (2) implement this program and, (3) after several months, study the effect on significant injury and quality of life. The effects were looked at through a comparison of the researcher's data pre and post restraint reduction.

According to Evans and Strumpf (1989), everyday in the United States over 500,000 elderly patients in hospitals and nursing homes have been restrained to their beds and chairs. The practice of applying physical restraints had become increasingly common in the care of the elderly, in hospitals and nursing homes. Evans and Strumpf (1989), had reported the prevalence of restraint use in nursing homes to be between 25% and 84.6%. The problem for long term care management had become the decision whether or not to utilize physical restraints, and under which
conditions.

According to the residents' rights section of the Wisconsin Department of Health and Social Services Regulations (1990), whether or not a physical restraint should be applied is a medical decision. According to the Omnibus Budget Reconciliation Act (OBRA) 1987, the justification for the use of physical restraints by physicians' orders, no longer applies. The law firm of Katten Muchin and Zavis located in Madison, Wisconsin had noted that courts were beginning to get tougher on nursing homes which had failed to restrain residents who should have been restrained, and on nursing homes which had improperly applied restraining devices, regardless of physician's orders.

When a nursing home fails to restrain a patient who should have been restrained, the nursing home and its administrator may be liable for any resulting harm to the resident or others. According to Katten Muchin and Zavis (1990), it also means that when harm comes to a resident because of an improperly applied or hazardous restraint, the nursing home and its administrator are again potentially liable. Liability issues were exemplified throughout the following
cases.

An Alabama Circuit Court decision in 1989, held a nursing home liable for the accidental strangulation of an eighty-six year old woman. This decision was due to an incorrect size vest that was used, inadequate staffing, and insufficient training of staff regarding the correct use of the restraint.

In the lawsuit of Kujawski (1987), the court found sufficient evidence to establish that a nursing home was negligent in failing to provide a safety belt for a resident who had problems sitting properly in a wheelchair. They found the facility to be liable for the injuries which resulted to the resident when she fell out of her wheelchair. The injuries which occurred were the direct result of the failure to provide the resident with the safety belt.

According to McNutchion and Morse (1989), administrators had frequently been ambivalent about the use of restraints. Administrators had not been clear in their directions to staff members regarding restraint use. Due to their ambivalence, nurses received a variety of directions for restraint use. This led to some confusion on the nurses behalf as to how restraints were to be utilized. The legal system
clearly places the responsibility for patient safety on the institution, the nurse, and sometimes the physician. Lawsuits for damages resulting from patient falls have been relatively common and perceived by administrators to be a considerable liability risk. Incidents involving injury from the use of restraints occurred less frequently than incidents occurring from the lack of restraints. Administrators therefore perceived themselves to be less vulnerable to lawsuit through patient injury or death from the use of restraints.

Varied acceptance from society had also been very common regarding restraint use, as identified by McHutchion and Morse (1989). Some of the relatives of residents shared the administrator’s fear that their relative would fall. These relatives insisted that their family member be restrained. In other instances, family members were shocked to find that residents were actually restrained to their chairs. Theoretically, the use of physical restraints is a professional nursing judgement. In clinical practice the nurse feels pressured by family wishes, administrative policies, and the legal ramifications if an incident such as a fall occurred, and family
wishes were not followed. This varied acceptance of restraint use by society and family members reinforces the confusion on the part of the staff nurse as to how restraints are utilized.

The review of the literature begins with historical perspectives of restraint use and continues with the incidence and prevalence of restraint use. This is followed by rationale, and the effects and consequences of restraint use. Legal and ethical dimensions of restraint use will also be explored along with quality of life issues. In conclusion, alternatives to restraint use will be discussed.

Data from previous research studies was presented according to topic, and their relevance to the management issues.

Relevant Management Issues

According to Soloff (1984), physical restraints in various forms had been used for centuries to manage violent behavior, particularly in the mentally ill. Social pressure toward humanistic care and legal and regulatory efforts to protect the individual rights of psychiatric patients led to reduction in 1984, but not
total elimination of physical restraints with this population.

It is unclear when restraints began to be used regularly in elderly nonpsychiatric patients in nursing homes. As far back as 1885, in an early nursing text Weeks (1885) stated that "restraint must be effectual or it only aggravates the trouble." He also stated that "with proper attendance, physical restraint is seldom necessary and should be avoided if possible."

Gerdes (1968), warned that restraints seem to intensify the disorganized behavior of many patients. Extremely confused patients may misinterpret restraints as punitive. Gerdes (1968), also found that restraints contributed to sensory deprivation and a loss of self-image. Gerdes interpretation reinforced the belief of Weeks (1885), regarding the negative effects of restraint use.

By 1970, Cubbin spoke out against the overuse of restraints. Cubbin stated that "the effects of restraining many patients who are mentally well but physically poor can lead to a deterioration in the patient's mental condition." Miller (1975), and Oster (1976), spoke to the adverse effects of restraints and
immobilization. These adverse effects are numerous and range from an injury from a fall to functional decline, skin breakdown, cardiac stress, disorganized behavior, and accidental death by strangulation. Covert et al., (1977), observed the frequency with which "any display of socially deviant behavior is met with physical or chemical restraints in nursing homes."

Since 1980, the literature regarding restraint use with the elderly had increased. Actual research on physical restraint use is sparse, even in the psychiatric literature to date of 1990. With elderly nonpsychiatric patients only ten studies of physical restraints were found. These studies cited by Evans and Strumpf (1989), addressed the prevalence of physical restraint among hospitalized elderly, nursing home prevalence and restraint practices. Patients' reactions to being restrained and nurses' decisions to restrain elderly patients were also addressed in these ten studies.

According to Evans and Strumpf (1989), the incidence and prevalence of restraint use in the elderly varied by setting and in relationship to the patient's age and cognitive status. As reported by
Mion (1986), hospital settings reported incidence of restraint use which varied from 7.4%-22%. The most recent data from the Health Care Financing Administration (1988), listed the nationwide prevalence of physical restraint use in United States nursing homes at 41%. Chemical restraints were at least as common as physical restraints. Evans and Strumpff (1989), reported the prevalence of restraint use in nursing homes to be between 25% and 84.6%.

The use of restraints has been shown to systematically increase in relationship to the age of the patient and the level of cognitive impairment, regardless of the setting. Frengley and Mion (1986), in their study of restraint use in four acute medical units showed that 56% of patients who were restrained were age 70 or older. Those patients over 70 were significantly more likely to be restrained than younger patients. According to Frengley and Mion (1986), nursing personnel were much more likely to restrain older than younger patients, in the mistaken belief that the old will always seriously injure themselves.

Robbins et al, (1987), reported the following as predictors of restraint use: abnormal mental status,
diagnosis of dementia, surgery, and presence of monitoring or treatment devices. Cognitive impairment was the only significant independent predictor of restraint use in their study. Almost all nursing home studies documented increased restraint use in those patients exhibiting behavioral or cognitive impairment. Zimmer, Watson, and Treat (1987), noted that restraints were used in nearly 50% of those residents in a skilled nursing facility found to have moderate or serious behavior problems.

According to Williams (1989), as prevalent as restraint use is on this continent it is almost unheard of in Northern Europe. A crosscultural research study was done by Dr. Lois Evans in 1987, which looked at restraint use in Scotland compared to restraint use in the United States. Results of this study were presented at the Gerontological Nursing Conference (1990). This study showed that 3.8% of patients in Scotland utilized restraints, versus 41% utilizing restraints in skilled nursing facilities in the United States. This study also compared the differences in perception of legal liability between Scottish and United States nurses. They found that Scottish nurses believed that they would intensify
their liability if they utilized restraints. United States nurses believed that they would intensify their liability if they did not utilize restraints.

Experience in Northern Europe coupled with successful models of restraint limited environments in the United States had encouraged nursing home personnel to question the widespread use of restraints. The Omnibus Budget Reconciliation Act of 1987, regulations effective October 1, 1990 had also encouraged nursing homes to question the ways that restraints were being utilized.

The Omnibus Budget Reconciliation Act (OBRA) of 1987, residents' rights provision regarding restraints, stated that:

"the resident has the right to be free from physical or mental abuse, corporal punishment, involuntary seclusion, and any physical or chemical restraints imposed for purposes of discipline or convenience and not required to treat the resident's medical symptoms."

OBRA (1987) further stated that "restraints may only be imposed to ensure the physical safety of the resident or other residents, and only upon the written order of a physician." This written order must
specify the duration and the circumstances under which the restraints are to be used. OBRA defined a restraint as "that which confines, restricts liberty or prohibits actions." Specifically, OBRA federal regulation 483.139(a) defined physical restraints as:

"any manual method or physical or mechanical device, material, or equipment attached or adjacent to the resident's body that the individual cannot remove easily which restricts freedom of movement or normal access to one's body."

This definition included such common devices used in long term care facilities as a bedrail, gerichair, wheelchair, safety bar, and postural supports. The Wisconsin Statutes Section 50.09(1), further defined physical restraints as including but not limited to, "any article, device or garment which interferes with the free movement of the resident and which the resident is unable to remove easily and confinement in a locked room."

Chemical restraints were defined by OBRA as the use of antipsychotic medications. OBRA stated:

"Based on a comprehensive assessment of a resident, the facility must ensure that
(1) residents who have not used antipsychotic drugs are not given these drugs unless antipsychotic drug therapy is necessary to treat a specific condition, and (2) residents who use antipsychotic drugs receive gradual dose reductions, drug holidays or behavioral programming, unless clinically contraindicated, in an effort to discontinue these drugs."

OBRA was designed to promote a more rigorous assessment process along with better documentation of patients receiving antipsychotic medications. Since antipsychotic drugs have potentially serious adverse effects, OBRA was also designed to encourage the use of these drugs at the lowest effective dose for the shortest possible time with careful monitoring for these adverse effects.

Yarmesch and Sheafor (1984), identified the most common reasons for restraint usage. Prevention of injury to self or others has been the most frequently cited rationale for the use of physical restraints. The second most common rationale was to control behavior. Patients had been typically restrained when they were agitated, nervous, abusive, aggressive, disruptive, or when they had displayed wandering behaviors. Yarmesch and Sheafor (1984), found that the cognitively impaired patient had frequently been restrained due to their decreased ability to
understand explanations given to them by caregivers, and their increased risk for accidents. A small number of patients restrained have been placed in restrictive devices in order to assure good body alignment rather than restraint due to behavioral problems.

Evans and Strumpf (1989), have found that the reasons most often given for restraining patients are to prevent falls and to lessen the agitation that can lead patients to injure themselves or harm other patients or staff. They also found that patients were restrained to prevent pulling out intravenous lines, feeding tubes, or other treatment devices.

Even though the most commonly cited rationale for restraint use has been to prevent falls and lessen agitation, Evans and Strumpf (1989), indicated that restraint use may exacerbate problems and actually cause injury. Patients have continued to fall even when they are tied to their beds. In fact, attempts to remove the restraining device may actually precipitate falls.

Halpert and Connors (1986), suggested that risk of injury from falls out of bed increases when restraints are applied and that the application of restraints
seldom eliminates the risk of injury. Many patients learn to untie their restraints, and numerous falls especially from wheelchairs have resulted from attempts to remove restraints. Once a fall or accident has occurred regardless of the outcome, staff often feels compelled to restrain the patient. The staff's needs to restrain patients as identified by Evans and Strumpf (1989), have come from administrative pressures whenever falls occur, the staff's own concern about possible litigation and a lack of available or permissible alternatives to restraint use.

Schwab (1975), identified the "safety first" mentality which has been so prevalent in American health care institutions. This mentality precluded the risk taking that is essential to health maintenance for the old and which forces many institutionalized elders to live far more restricted lives than their limitations require. In those settings where the use of restraints has been discontinued or severely curtailed, the rates of incidents have increased with no increase in serious injury, (McHutchion and Morse, 1989).

Chemical restraints also have a dangerous
potential when used in the elderly. According to Ray, Griffin, and Downey (1989), impaired motor coordination which are side effects of psychotropic medications, may increase the risk of falling. When patients are less sedated they are more alert and coordinated and are often able to perform activities of daily living with greater independence and safety.

The use of physical and chemical restraints have not necessarily been found to lessen agitated behaviors. Blakeslee (1988), has found that patients may become more agitated as they fight against the restraints or suffer toxic reactions to psychotropic drugs. Agitated behaviors increased as soon as nursing home residents were physically restrained and did not subside with prolonged restraint use.

Other than having effects exactly opposite to those intended restraints may induce additional problems. Beers (1988), had identified toxic reactions to chemical restraints in the elderly including over sedation, increased confusion, orthostatic hypotension, and tardive dyskinesia. The elderly, particularly elderly women are at higher risk of developing tardive dyskinesia than other groups, (Whall, 1984). Tardive dyskinesia is
characterized by continuous movements of the face, tongue, body, and/or extremities. The risk of falling and fracturing a hip is more likely in a resident taking antipsychotic drugs, (Johnson, 1990).

The willingness of health professionals to apply restraints to the elderly is somewhat puzzling, in view of the existing knowledge about the effects and consequences of restraint and immobilization in this age group. Warshaw et al, (1982), reported that physical restraints reduce functional capacity as a patient loses steadiness and balance when restricted to a bed or chair. Adverse effects reported in physically restrained patients by Evans and Strumpf (1989), are numerous and included the following: (1) incontinence or constipation from limited mobility, (2) aspiration pneumonia, (3) skin abrasions and breakdown, (4) contractures, (5) decreased muscle mass, (6) functional decline, (7) reduced appetite and dehydration, (8) increased disorganized behavior and (9) decreased ability to ambulate independently. In addition to these physical problems, there are emotional effects of restraint use such as anger, fear, humiliation, demoralization, and decreased social behavior.
A study done by Folmar and Wilson (1989), focused on the effects of physical restraints on social behavior of residents in a skilled nursing facility. Social behavior was evaluated by categorizing the residents' social interactions into six different levels. They then compared the social interactions of restrained versus unrestrained residents. Their findings concluded that the lowest level of social functioning was displayed by the restrained residents. The results of Folmar and Wilson's study (1989), suggested that patients with conditions such as cognitive decline, psychiatric problems and physical deterioration are related to decreased social interaction. These conditions often lead to behaviors for which physical restraints are commonly used. According to Folmar and Wilson (1989), the use of restraints once the above conditions were identified, seemed to lead to further deterioration of social skills.

Federal and state regulations attempted to assure freedom from unnecessary physical and chemical restraints for nursing home residents. This was a new philosophy identified in the OBRA regulations of 1987. OBRA attempted to assure this freedom by holding
nursing homes liable when restraints were used for convenience of the staff members rather than in a patient emergency. Resident's rights to freedom from restraint and to privacy versus facility obligations to protect residents from abuse and accidents, could be a basis for liability, according to Katten Muchin and Zavis (1990). Liability issues were exemplified in the following case studies.

In *Dusine v. Golden Shares Convalescent Center Inc.* (1971), a patient was injured when left unattended in a vest restraint. Lack of supervision, rather than misuse of a restraint was the pivotal factor in finding the nursing home liable, since regulations required extensive supervision of a patient utilizing restraints. Evans and Strumpf (1989), stated that "although nurses know that restraints are not to be used for staff convenience, they believe that no alternative exists for managing a large caseload of patients."

A recent Alabama Circuit Court decision held a nursing home liable for the accidental strangulation of an eighty-six year old woman. An incorrect size vest restraint was used, staffing was inadequate and staff had not been trained in the correct use of the
Misuse of a restraint and failure to obtain physician approval for its use was the basis of nursing home liability in Fleming v. Prince George's County (1976). Nurses applied an inadequate restraint without physician approval. The patient escaped from the restraint and suffered a fatal fall.

In McGillivray v. Rapides Iberia Management Enterprises (1986), there was an unwillingness on the part of the court to hold that there was a duty to restrain. Rather, the appellate court of Louisiana emphasized the duty to supervise and provide reasonable care. The court refers not to the failure of the nurses to restrain the patient, but to their failure to guard against his leaving the premises. If the facility could have met this standard by a properly operating alarm system or by proper supervision, then negligence lies in the improper performance of those duties not in the failure to restrain.

In the lawsuit of Klawmrsk v. Arborview Health Care Center (1987), the court found sufficient evidence to establish that a nursing home was negligent in failing to provide a resident with a
safety belt. They found the facility to be liable for the injuries which resulted to the resident when she fell out of her wheelchair. The injuries which occurred were a direct result of the failure to provide the resident with a safety belt. This particular case reinforced the United States nurses' belief that their liability would intensify if restraints were not utilized.

Robbins (1987), stated that the chief goal of rehabilitation which is to foster independence is incompatible with the use of restraints. Edelson and Lyon (1985), described the dilemma for the nurse working with frail cognitively impaired elders who are at high risk for accidents but at the same time may be incapable of interpreting personal needs for safety and security. The nurse who is most often involved in the decision to restrain may experience conflict between professional practice standards, institutional policies, and respect for the dignity and autonomy of patients.

According to Mitchell-Pederson et al, (1985), lawsuits involving the improper application of restraints have been successful. They further stated, "American courts have upheld the notion that restraint
use is undesirable and impair patients' quality of life."

The weighing of benefits as well as risks of restraint use on an individual basis is the first step towards considering alternative approaches to restraint use. Research is lacking on satisfactory alternatives to restraint, (Schwartz, 1985). Although nurses "know" that restraints are not to be used for staff convenience, nurses believe that no other alternative exists for managing a large caseload. Restraints have a certain appeal; immediate impact on behavior, easy application with little training, ready accessibility, and administrative sanction, as cited by Robbins (1986).

Mitchell-Pederson et al, (1985), reported that some facilities including hospitals and nursing homes, have deliberately reduced restraint use without increases in either staffing or serious injuries. Papougenis (1989), "estimated the time which would be required to follow current standards for frequent and regular inspection, release, exercise, toileting, monitoring, and evaluation of the elderly patient in restraints, to be four hours and thirty five minutes, in a twenty four hour period." Estimated time spent
caring for an elderly nonrestrained patient was two hours per twenty-four hour period.

A study by Evans and Strumpf (1987), reported the average number of alternatives to restraint use that could be named by nurses. They found 2.2 alternatives named by United States nursing home nurses and 5.1 alternatives named by Scottish nurses. Five categories of alternatives to restraint use were identified by Evans and Strumpf (1987). These categories included: physiologic care (e.g., comfort, pain relief, positioning and changes in treatment), psychosocial care (e.g., remotivation, companionship and supervision), activities (e.g., distraction and planned recreation), environmental manipulation (e.g., increased light, redesign of furniture and removal of restraint devices), and lastly, administrative support and staff training.

Administrative support to decrease staff fear of legal litigation or other repercussions is essential as is training and emotional support for staff. Emotional support for staff who work with residents with behavioral disturbances enables them to tolerate and respond appropriately to a broader range of potentially bothersome behaviors, (Rovner and Rabins,
A change in policy and staff expectations coupled with removal of restraint equipment has been shown to decrease restraint use on certain types of units, according to Mitchell-Pederson (1985).

**Conclusion**

The statistics on restraint use in the United States, along with the OBRA (1987) regulations regarding restraint use, forced this researcher to take a closer look at restraint use in a midwestern skilled nursing facility. The study done by Evans and Strumpf (1987), comparing restraint use and nurses' perceptions regarding restraint use in Scotland and the United States yielded interesting results. These results and the lack of alternatives to restraint use offered by United States nurses reinforced this researcher's belief that there must be other methods that can be used to effectively handle the behavior problems encountered in the geriatric population.

According to the various studies reviewed in the literature, restraint use has not accomplished the primary goals for which they were intended; to prevent falls and to lessen the agitation that can lead
patients to injure themselves or harm others. In addition to having effects exactly opposite to those intended, restraints can induce additional problems related to immobilization of the geriatric patient. These problems ranged from physical and functional decline to emotional and social deterioration.

The functional and social decline of geriatric patients related to restraint use was one of the variables tested in this study. The results of Folmar and Wilson's study (1989), related decreased social interaction and deterioration of social skills to restraint use. This was one of the variables assessed in this study with the use of the OARS Multidimensional Functional Assessment Questionnaire.

Lawsuits involving the improper application of restraints have been successful, according to Mitchell-Pederson et al. (1985). They further stated that American courts have upheld the notion that restraint use is undesirable and impair patients' quality of life. This notion served as the foundation for this researcher to evaluate patients' quality of life in terms of their functional abilities. This was evaluated with the use of the OARS Multidimensional Functional Assessment Questionnaire.
The other variable that was evaluated in this study was that of significant or serious injury related to the use of restraints. McHutchion and Morse (1989), had found that in those settings where the use of restraints had been discontinued or severely curtailed, the rates of incidents had increased with no increase in serious injury. This variable was evaluated through the review of incident reports pre and post restraint reduction.
CHAPTER III
METHODOLOGY

Overview

According to Evans and Strumpf (1989), everyday in the United States over 500,000 elderly patients in hospitals and nursing homes had been restrained to their beds and chairs. The practice of applying physical restraints had become increasingly common in the care of the elderly, in hospitals and nursing homes. Evans and Strumpf (1989), reported the prevalence of restraint use in nursing homes to be between 25% and 84.6%. The problem for long term care providers had become the decision whether or not to utilize physical restraints, and under which conditions.

On October 1, 1990, the rules and regulations specified by the Omnibus Budget Reconciliation Act (OBRA), of 1987, had a major impact on physical and chemical restraint usage in the elderly population. During the early 1990's, there was not a large amount of research done dealing with restraint usage, and it's effects on the geriatric population. OBRA had consequences regarding the following; (1) when
restraints were used, (2) how long the patient was in the restraint, and (3) what interventions were attempted prior to applying the restraint.

The researcher chose to study the effect of physical and chemical restraint reduction in the geriatric population, on significant injury and quality of life. The goals of this research were threefold; (1) to devise a restraint reduction program for a Midwestern Nursing Home, (2) implement this plan and (3) after several months, study the effect on significant injury and quality of life. The effects were looked at through a comparison of data pre and post restraint reduction.

Research Question and Hypotheses

The researcher identified the specific research question as follows: What is the effect of physical and chemical restraint reduction in the geriatric population, on significant injury and quality of life?

For purposes of this research study, the independent variable had been defined as the level of physical and or chemical restraint use at the pre-test and the post test time. The dependent variables had been defined as: (1) significant injury which was
specifically defined as fractures, sutures, or a permanent change in the resident's condition, and (2) quality of life which was studied in terms of the residents' functional abilities.

The hypotheses underlying this research study were; $H_1$ Physical and chemical restraint reduction would decrease significant injury rates, and $H_2$ Physical and chemical restraint reduction would increase patients' quality of life.

**Nature of the Study**

The nature of this research study was quasi-experimental. The researcher did not have total control over manipulation of the independent or dependent variables. The researcher could control when observations were made and when the treatment of restraint reduction was applied. The researcher had only partial control over which group would receive the treatment of restraint reduction, due to the consent which was needed from the resident or the resident's power of attorney.

The researcher had chosen the pretest-posttest quasi-experimental design. A pre-questionnaire was administered prior to restraint reduction and a post
questionnaire was administered four months following restraint reduction. The questionnaires were administered to the resident's case manager, and contained questions which pertained to the resident's quality of life.

**Study Variables and Instruments**

For purposes of this research study, the independent variable had been defined as the level of physical and or chemical restraint use at the pre-test and the post test time. Restraint reduction had been further defined as elimination of restraint use or a reduction in the severity of the application, i.e., a decrease in the dose of a chemical restraint, the use of a less restrictive physical restraint.

The dependent variables had been defined as: (1) significant injury which was specifically defined as fractures, sutures, or a permanent change in the resident's condition, and (2) quality of life which was studied in terms of the resident's functional abilities.

Significant injury data was collected through the use of a tally sheet and the review of all incident reports. The incident reports were reviewed for a six
month period of time. The reports were reviewed for three months prior to implementation of the restraint reduction program and for the three months that restraints had been reduced. The significant injury rate pre restraint reduction was compared with the significant injury rate post restraint reduction.

Quality of life was studied in terms of the residents' functional abilities. Functional abilities included any changes that occurred in the following: social contact, less participation in activities and decreased ability to perform activities of daily living such as mobility, toileting, bathing, dressing and eating.

Changes in functional abilities were measured pre and post restraint reduction. These changes were measured with the use of the OARS Multidimensional Functional Assessment Questionnaire (Fillenbaum, 1988). The questionnaire was completed by the resident's case manager. The midwestern nursing home where the research was conducted, had a system of assigning a nurse to each resident. This nurse was responsible for overseeing and coordinating resident care, and was called their case manager. The pre-questionnaire was completed by the case manager in
September 1990. These results were compared to the results from the post-questionnaire, completed by the case manager in January 1991.

Methodological Assumptions

Basic assumptions underlying this research study were: H1 Physical and chemical restraint reduction would decrease significant injury rates, and H2 Physical and chemical restraint reduction would increase residents quality of life. These assumptions were the result of the literature reviewed to date (e.g., early 1991). The literature indicated that if the dosage of chemical restraints were decreased, the resident would be more alert and not as weak physically. As a result of these effects, the resident would be better able to participate in activities of daily living, thus increasing their quality of life and decreasing significant injury. The same rationale holds true for decreasing the use of physical restraints or the severity of their restriction. Physical restraint reduction leads to increased participation in activities of daily living. This can increase muscle mass and tone, and therefore decrease the risk of significant injury and increase
quality of life.

Instruments

The researcher used a tally sheet to collect data pertaining to significant injury. The tally sheet was already being used by this particular midwestern nursing home in order to monitor their incident occurrence. The researcher used the tally sheet to monitor incident occurrence during the four month period of time when data regarding restraint reduction was monitored and collected. The data from this four month period of time was compared to the significant injury rate prior to the implementation of the restraint reduction program.

The OARS Multidimensional Functional Assessment Questionnaire (Fillenbaum, 1988), was utilized to measure any changes in functional abilities, pre and post restraint reduction. The OARS questionnaire was developed as part of the Older Americans Resources and Services Program at Duke University in 1972. According to Fillenbaum (1988), it is a valid and reliable questionnaire designed to assess the overall personal functional status and service use of adults, particularly of the elderly population. The
questionnaire provided information in five areas; social, economic, mental and physical health, and self care capacity (activities of daily living).

Since the questionnaire was intended for both clinical and research use, validity studies focused on (a) the extent to which questionnaire based assessments agreed with assessments made by professionals after personal interview and agreed with an objective standard, and (b) the statistical structure of the questionnaire. The content and consensual validity was assured by the manner of item selection. The questionnaire was intended to have clinical relevance. The questionnaire based ratings in the health related areas were compared with ratings made by professionals on the same resident, in order to determine criterion validity.

According to Fillenbaum (1988), the level of agreement between the two ratings was determined with the use of Kendall's tau and Spearman's rank order correlations. On each of the four areas examined, there was statistically significant agreement between ratings. Thus, the questionnaire was found to have content, consensual, and criterion validity.

In examining reliability, studies focused on
test-retest reliability and inter-rater reliability (Fillenbaum, 1988). In looking at test-retest reliability, certain differences in response on the two occasions were considered acceptable. Of the responses obtained, 90.7% of the responses were identical. Change in response was as likely to occur for subjective as for objective items.

According to Fillenbaum, (1988), inter-rater reliability was assessed using the intraclass correlation coefficient derived from an analysis of variance performed for each of the OARS scales. The results obtained were all statistically significant at an alpha level of .001. There was substantial agreement among a broadly dispersed group of raters who were using the questionnaire for diverse purposes and who shared no continuing contact.

**Sampling Procedures**

The study population included elderly residents in a midwestern nursing home, who were utilizing physical or chemical restraints. From this original population, the researcher identified potential candidates for restraint reduction or elimination. Potential candidates were identified by; (1) consent
provided for participation in the study by the resident's power of attorney, and (2) interdisciplinary meetings carried out over time, to discuss each candidate individually. These meetings included discussion regarding potential restraint reduction, alternatives to restraint use, alternative restraints (less restrictive), and safety issues.

This sampling procedure could have an impact on the outcome of the study. The researcher had a lack of control over who would consent to participation in the study. Of those who consented to participate in the study, the researcher could not allow restraint reduction to occur without the consensus of the group at the interdisciplinary meetings, or if restraint reduction posed a threat to the resident's safety. These conditions limited the sample size of the population, and could alter the results of the study.

Data Collection Procedures

Data was collected at the midwestern nursing home. It extended over a four month period of time, from September 1990 through January 1991. In the first phase of the data collection, consent to participate was solicited from each resident and or legal
representative (POA). The next step was completion of the OARS Multidimensional Functional Assessment questionnaire by the residents case manager. The Midwestern nursing home utilized a case manager system whereby each licensed nurse was assigned residents. The case manager was then responsible for overseeing and coordinating the care for these residents.

After the questionnaire was completed, then data collection regarding the actual restraint reduction began. Residents utilizing physical and chemical restraints were classified into four groups depending on their reason for restraint use (see Fig. 1).

<table>
<thead>
<tr>
<th>Figure 1: Reason for Restraint Use</th>
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<tbody>
<tr>
<td><strong>Group</strong></td>
</tr>
<tr>
<td>-----------------------------</td>
</tr>
<tr>
<td>Group A: Nonspecific or &quot;as needed&quot; use</td>
</tr>
<tr>
<td>Group B: Treatment Interference</td>
</tr>
<tr>
<td>Group C: Positioning</td>
</tr>
<tr>
<td>Group D: Fall Risk</td>
</tr>
</tbody>
</table>

Weekly interdisciplinary meetings were conducted with nursing, therapy and social services. Each resident with a restraint order was discussed individually, beginning with Group A residents. These discussions focused on the objective of restraint
usage and whether or not that objective could be met by alternative strategies, or less restrictive means. Once a consensus had been reached by the interdisciplinary group on the type of reduction to be attempted, the resident's physician was consulted and appropriate orders were received. These weekly discussions were continued until all the residents and their restraint use in Groups A through D were reviewed.

During the restraint reduction period, staff members were inserviced frequently. These inservices focused on the different types of available restraints, their appropriate use, alternative strategies to restraint use, less restrictive measures, and specific assessment of individual residents restraint use. The inservicing had been an ongoing process since the start of the restraint reduction program and will continue beyond the completion of this research project.

At the end of the data collection period, January 1991, the OARS Multidimensional Functional Assessment Questionnaire was completed once again by the resident's case managers. The data from this post questionnaire was then compared to the results from
the pre-questionnaire.

During the data collection period, all incident reports were reviewed in depth. These reports were reviewed for the type of incident, injuries incurred as a result of the incident, and any contributing factors to the incident such as restraint use. Significant injury rates were compared before and after the restraint reduction period. Results of this comparison are located in Chapter 4, Findings.

Data Analysis

The interpretive analysis of the data included the use of the paired t-test. This test was chosen due to the pre-test, posttest design of this research study. The researcher chose to analyze the data at the .05 confidence level.

Limitations

Limitations of this study included the possibility of a small sample. The entire population were not candidates for restraint removal and the researcher had a lack of control over who would consent to participation in the study. Restraint reductions could not be implemented without the consensus of the
interdisciplinary team. Once restraint reductions had occurred, the researcher did not have control over the success of the reductions. The success of the reductions needed evaluation on a daily basis, and on an individual basis. There was also the possibility that the restraint reductions would not be permanent if the resident was not tolerating the reduction. If negative effects to the restraint reductions were observed, such as safety or behavioral issues, then restraint use for that individual needed re-evaluation. It is also possible that the frequent inservicing of staff members could have an effect on the success of the restraint reductions. The inservicing raised the awareness of the staff members on how they were utilizing restraints, and could have effected the success of the reductions.
CHAPTER IV
RESEARCH FINDINGS

The study population included elderly residents in a midwestern nursing home, who were utilizing physical or chemical restraints. From this original population, the researcher identified potential candidates for restraint reduction or elimination. Potential candidates were identified by: (1) consent provided for participation in the study by the resident's power of attorney, and (2) interdisciplinary meetings carried out over time, to discuss each candidate individually. These meetings included discussion regarding potential restraint reduction, alternatives to restraint use, alternative restraints (less restrictive), and safety issues. The study population ultimately included thirty six residents who were either restrained physically, chemically or both (N=36). These thirty six residents represented 60% of the total census population at the start of this study.

The researcher received a 94% return of the consent forms for participation in the study. The consent forms that were not returned represented 2 of
the residents utilizing restraints. Consent for these two residents was eventually obtained through further explanation of the study to the power of attorney's. The consent form which was used, allowed for four different levels of participation in the study. These four levels of participation were: (1) full participation in the study, (2) participation in the study only with further information provided, (3) may use clinical record only, for background information and (4) no participation in the study, leave restraints as they are currently being used.

Upon initial return of the consent forms to the researcher, the response was as follows: (1) 44% consented to full participation, (2) 18% consented to participation only with further information provided, (3) 24% consented to the use of the clinical record for background information, and (4) 15% did not consent to any level of participation in the study, and wanted restraints to be left as they were currently being used. The researcher followed up the responses received on the consent forms with individual phone calls to the resident's power of attorney. These phone calls included discussion of the power of attorney's wishes regarding restraint use.
and further explanation of the researcher's restraint reduction study. Following the discussion with the power of attorneys for the residents represented in groups 2-4, the researcher received 100% consent for participation in the study. This 100% consent rate was contingent upon the researcher keeping in close contact with the power of attorneys during the restraint reduction period. This involved updating them frequently with any considerations for restraint reduction involving their particular resident.

After consent to participation was received, the researcher classified the restrained population into four categories depending on their reason for restraint use (see Figure 1).

<table>
<thead>
<tr>
<th>Group</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>Nonspecific or &quot;as needed&quot; use</td>
</tr>
<tr>
<td>Group B</td>
<td>Treatment Interference</td>
</tr>
<tr>
<td>Group C</td>
<td>Positioning</td>
</tr>
<tr>
<td>Group D</td>
<td>Fall Risk</td>
</tr>
</tbody>
</table>

Weekly interdisciplinary meetings were conducted with nursing, therapy and social services. Each resident with a restraint order was discussed
individually, beginning with Group A residents. These discussions focused on the objective of restraint usage and whether or not that objective could be met by alternative strategies, or less restrictive means. Once a consensus had been reached by the interdisciplinary group on the type of reduction to be attempted, the resident's physician was consulted and appropriate orders were received. These weekly discussions were continued until all the residents and their restraint use in Groups A through D were reviewed.

The percentage of the restrained residents pre-reduction and post reduction were presented in Figure 2 according to their reason for restraint use.

<table>
<thead>
<tr>
<th>Reason for Restraint</th>
<th>Pre-reduction</th>
<th>Post-reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonspecific or &quot;PRN&quot;*</td>
<td>31%</td>
<td>6%</td>
</tr>
<tr>
<td>Treatment Interference</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Positioning</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Fall Risk</td>
<td>39%</td>
<td>33%</td>
</tr>
</tbody>
</table>

According to the results presented in Figure 2, it was obvious that some reduction had occurred in the categories of nonspecific or "PRN" (as needed) use and
Graph 1: Percentage of the Restrainted Population Pre and Post Restraint Reduction According to Reason for Restraint Use.

Graph 2: Percentage of the Restrainted Population Pre and Post Restraint Reduction According to the Type of Restriction.
the treatment interference group. The positioning and fall risk categories did not show a significant improvement post restraint reduction. In fact, there was no change in the percentage of residents utilizing physical restraints for positioning purposes. It was then necessary for the researcher to take a closer look at the amount of restriction which was applied with the restraint use pre and post restraint reduction. The researcher categorized the restrictive nature of the restraints utilized into four types. Type 4 was categorized by the researcher as body holders. Body holders included restraints such as a chest, pelvic, jacket, mitt, wrist, or roll belt. Type 3 included restraints such as a tray table, a support bar, seatbelts and lapbelts. Type 2 included the use of gerichairs or reclining chairs. Type 1 was considered to contain the use of positioning aides only. Type 0 contained residents who were not utilizing restraints at all. The amount of restriction provided by restraints to the restrained residents, pre and post reduction was presented according to type in Figure 3.
The results presented in Figure 3 showed a decrease in the percentage of residents utilizing the most restrictive physical restraints (type 4) post restraint reduction. There was an increase in the percentage of residents utilizing physical restraints in types 3-0 post restraint reduction. This increase showed movement towards utilizing less restrictive physical restraints post reduction.

The amount of physical restraint restriction pre and post restraint reduction was statistically analyzed with the use of Chi Square. Chi Square was calculated to be 40.59. This value was significant at the .05 level. This result showed that the reduction in the amount of restriction provided with the use of physical restraints in this study was statistically significant.

From the original study population, 28% (10
residents) were utilizing chemical restraints at the start of the study. This 28% represented 17% of the total census population. During the restraint reduction period 40% (4 residents) experienced a reduction in the dosage of the chemical restraint that they were receiving. That 40% tolerated the reduction in dose well (free of negative effects) and were maintained at the reduction level throughout the remainder of the study. One resident or 10% of the population originally utilizing chemical restraints experienced discontinuation of the chemical restraint. This discontinuation was effective and was maintained throughout the remainder of the study. Following the completion of the restraint reduction period, 25% of the study population continued utilizing chemical restraints. This 25% represented 15% of the total census population.

At the beginning of this study the researcher had hypothesized H:\ Physical and chemical restraint reduction would decrease significant injury rates. The researcher monitored injury rates with the use of a tally sheet. This tally sheet was used to keep a record of all incidents which occurred pre and post restraint reduction. The total occurrence of
incidents was compared for Quarter 2, 1990 (pre-reduction) with Quarter 4, 1990 (post-reduction). The total incident occurrence for these two quarters was also broken down into the following categories for further analysis: (1) falls, (2) significant effect, (3) moderate effect, (4) no effect, (5) emergency room treatment, (6) admission to a hospital and (7) resident condition as a contributing factor to the incident. Incident occurrence data was presented with the use of the raw numbers of incidents and was not analyzed statistically. The restraint reduction period took place during Quarter 3 of 1990. Due to the comparison of only two quarters worth of incident occurrence data, the researcher decided to present this data in raw numbers of incident occurrence. Each number represents one resident incident. A comparison of incident data pre and post restraint reduction for Quarter 2 and Quarter 4 of 1990 were presented in Figure 4.

Figure 4: Comparison of Incident Data

<table>
<thead>
<tr>
<th>Category</th>
<th>OTR 2, 1990</th>
<th>OTR 4, 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total # Incidents</td>
<td>70</td>
<td>68</td>
</tr>
<tr>
<td>2. Falls</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>3. Significant Effect</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Category</td>
<td>QTR 2, 1990</td>
<td>QTR 4, 1990</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>4. Moderate Effect</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>5. No Effect</td>
<td>36</td>
<td>51</td>
</tr>
<tr>
<td>6. Emergency Room Treatment</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>7. Admission to a Hospital</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8. Resident Condition as a contributing factor to the incident</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant effect, also referred to as significant injury, was defined by the researcher as a fracture, suture or a permanent change in the resident's condition. According to the data presented in Figure 4, there was a slight increase in the number of falls post restraint reduction as compared to the pre-reduction number of falls. This data was expected according to the researcher's literature review. According to McHutchion and Morse (1989), in those settings where the use of restraints has been discontinued or severely curtailed, the rates of incidents have increased with no increase in serious or significant injury. Of the falls that occurred in quarter 4, there was a decrease in the number of residents who sustained a significant injury when compared with those residents in quarter 2. There was also a noticeable increase in the number of residents who had no effect from the incident in quarter 4 when compared with those residents in quarter 2.
Admissions to a hospital in both quarters remained the same. Resident condition as a contributing factor to the incident was slightly decreased from quarter 2 to quarter 4. The total number of incidents for quarter 4 was slightly less than the total for quarter 2.

The second hypothesis underlying this research study was determined as \( H_2 \): Physical and chemical restraint reduction would increase residents' quality of life. Quality of life was studied in terms of the residents' functional abilities. Functional abilities included any changes that occurred in the following: social contact, less participation in activities, and decreased ability to perform activities of daily living such as mobility, toileting, bathing, dressing, and eating.

Changes in functional abilities were measured pre and post restraint reduction. These changes were measured with the use of the OARS Multidimensional Functional Assessment Questionnaire. The questionnaire was completed by the resident's case manager. The midwestern nursing home where the research was conducted, had a system of assigning a nurse to each resident. This nurse was responsible for overseeing and coordinating resident care, and was
called their case manager. The pre-questionnaire was completed by the case manager in September 1990. These results were compared to the results from the post-questionnaire, completed by the case manager in January 1991.

The OARS questionnaire contained ten questions which the researcher chose to analyze for the quality of life portion of this study. Three of the ten questions' content pertained to life satisfaction. Seven of the ten questions' content pertained to physical activities of daily living (ADL's). The ADL questions referred to the resident's ability to feed self, dress, groom, walk, transfer, bathe, and remain continent. For the questionnaire portion of this study N=33 instead of the original restraint population of N=36. This difference was due to deaths within the original restraint population during the restraint reduction period.

The answers to the ten questions were compared pre and post restraint reduction. Pre and post restraint reduction questionnaires were analyzed statistically with the use of the paired t-test. The analysis was broken down into three categories; (1) comparison of life satisfaction data pre and post restraint
reduction, (2) comparison of ADL data pre and post restraint reduction, and (3) comparison of the combined life satisfaction and ADL sections of the questionnaire, pre and post restraint reduction.

The OARS questionnaire results pre and post restraint reduction for the above three categories was presented in Table 1.

<table>
<thead>
<tr>
<th>Category</th>
<th>T-Test value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Life Satisfaction</td>
<td>1.14</td>
<td>0.26</td>
</tr>
<tr>
<td>2. ADL Ability</td>
<td>1.34</td>
<td>0.19</td>
</tr>
<tr>
<td>3. Combined Life Satisfaction and ADL Ability</td>
<td>1.70</td>
<td>0.085</td>
</tr>
</tbody>
</table>

The test results presented in Table 1 were analyzed at the .05 confidence level. The results obtained in the category of combined life satisfaction and ADL ability supported the researcher's hypothesis identified as $H_0$: Physical and chemical restraint reduction would increase residents' quality of life. Further conclusions of the tests presented in Table 1 were drawn in Chapter 5.
Summary of Research Findings

The researcher received 100% consent from the study population for participation in this study. Initially 60% of the total census population had physician's orders for the use of physical restraints. The study population was separated into categories which explained their reasons for physical restraint use. Following the restraint reduction period, the level of successful reductions was not apparent according to the reasons for physical restraint use. However, the level of successful reductions was apparent when categorized according to the restrictive nature of the physical restraints, pre and post restraint reduction. The changes in percentages pre and post restraint reduction according to the restrictive nature of the physical restraints was analyzed statistically with the use of Chi Square. Chi Square was determined to be 40.59. Post restraint reduction 35% of the total census population had physician's orders for the use of physical restraints.

Significant injury rates were monitored by the researcher through the use of incident reports and a tally sheet. Significant injury data from the incident reports was compared for quarter 2 (pre
Graph 3: Percentage of the Total Census Population Utilizing Restraints Pre Reduction.

Graph 4: Percentage of the Total Census Population Utilizing Restraints Post Reduction.
Graph 5: Percentage of Total Census Population Utilizing Physical Restraints Pre and Post Reduction.
restraint reduction) with quarter 4 (post restraint reduction). Due to the comparison of only two quarters worth of data, the significant injury results were presented in raw numbers of incident occurrence. There was a slight increase in the number of falls which occurred post restraint reduction. Although, significant effect from the incidents decreased slightly post restraint reduction. There was a noticeable increase in the number of residents who had no effect from the incident post restraint reduction.

Quality of life data was gathered by the researcher through the use of the OARS Multidimensional Functional Assessment Questionnaire. Results of the questionnaire were compared pre and post restraint reduction. The comparison of results were analyzed statistically with the use of the paired t-test. The questionnaire results were presented in three categories according to question content. All research results were analyzed at the .05 confidence level.
CHAPTER 5
DISCUSSION

To analyze the level of successful restraint reductions that occurred during this study, the researcher began with the category of physical restraints. According to the results presented in Chapter 4, it appears that a significant number of physical restraint reductions were achieved through the utilization of less restrictive restraints versus total discontinuation of the physical restraints. The results presented in Figure 3 of Chapter 4, showed an increase in the less restrictive physical restraints utilized post restraint reduction. The research results according to the restrictive nature of physical restraints utilized pre and post restraint reduction were analyzed with the use of Chi Square. Chi Square was calculated to be 40.59. Earlier in this study, the researcher defined restraint reduction as a reduction in the restrictive nature of physical restraints utilized or a total elimination of physical restraint use. According to the result of Chi Square, physical restraint reduction was significant at the .05 confidence level, with the majority of reductions occurring through the use of less restrictive physical
restraints.

Pre restraint reduction, 28% of the study population was utilizing chemical restraints. This 28% represented 17% of the total census population. A dose reduction was experienced in 40% of the study population with 10% experiencing total elimination of chemical restraint use. Post restraint reduction, 25% of the study population continued utilizing chemical restraints with 4 residents receiving a decreased dose post reduction. This 25% represented 15% of the total census population. In a comparison of the pre and post chemical restraint reduction percentages, some reduction was achieved, although the reduction does not appear significant in this area.

Research results for the hypothesis of H₄: Physical and chemical restraint reduction would decrease significant injury rates, were presented in Figure 4 of Chapter 4. According to the results in Figure 4, there was a slight decrease in the total number of incident occurrences post restraint reduction with a slight increase in the number of falls which occurred post restraint reduction. Even with the increased number of falls which occurred post restraint reduction, there was a decrease in the number of residents who sustained a significant
injury. There was also a noticeable increase in the number of residents who had no effect from the incident post restraint reduction. According to the comparison of significant injury data pre and post restraint reduction, the researcher was not able to accept the $H_1$ hypothesis at the .05 confidence level. Physical and chemical restraint reduction did decrease the significant injury rate in this study, although this was not proven statistically due to the use of raw data in this category.

Research results for the hypothesis of $H_2$: Physical and chemical restraint reduction would increase residents' quality of life, were presented in Table 1 of Chapter 4. This was a one tailed test analyzed at the .05 confidence level. A comparison of the questionnaire answers for the life satisfaction category pre and post restraint reduction yielded a T-test value of 1.14 with a P-value of 0.26. These values were not significant at the .05 confidence level.

A comparison of the questionnaire answers for the ADL category pre and post restraint reduction yielded a T-test value of 1.34 with a P-value of 0.19. Here again, the test results in the ADL category were not significant at the .05 confidence level.
A comparison of the questionnaire answers in the combined category of life satisfaction and ADL ability, pre and post restraint reduction yielded a T-test value of 1.78 with a one-tailed P-value of 0.042. In the combined category, the test results indicate a statistically significant improvement in the questionnaire scores post restraint reduction. According to the statistical results for completion of the entire questionnaire (combined category), the researcher was able to reject the null hypothesis, thereby supporting the H2 hypothesis at the .05 confidence level. Physical and chemical restraint reduction did appear to increase residents' quality of life as defined in this study by functional abilities.

Problem Restatement and Outcomes

For purposes of this study the specific research question was; What is the effect of physical and chemical restraint reduction in the geriatric population, on significant injury and quality of life? According to the researcher's results, it appears that physical and chemical restraint reduction in the geriatric population decreases significant injury. Significant injury was defined by the researcher as fractures, sutures or a permanent change in the
resident's condition. It also appears that physical and chemical restraint reduction in the geriatric population increases residents' quality of life. Quality of life was defined by the researcher as functional abilities of the residents in the study population.

**Implications and Recommendations**

The researcher's results relating to the significant injury aspect of this study are in agreement with a study completed by Evans and Strumpf (1989). Evans and Strumpf (1989) found that the risk of serious injury or significant injury decreased without the use of physical restraints. They also found that residents did fall more without the use of physical restraints, but there was no significant increase in serious injuries related to those falls. Hutchison and Morse (1989), found that in those settings where the use of restraints had been discontinued or severely curtailed, the rates of incidents increased with no increase in serious or significant injury. The researcher's study results showed an increase in the number of falls with a decrease in the significant injuries related to those falls.
The researcher's results relating to the quality of life aspect of this study agreed with the study results of Folmar and Wilson (1989). The focus of Folmar and Wilson's study (1989), was on the effects of physical restraint use on the social behavior of residents in a skilled nursing facility. They concluded that the lowest level of social functioning was displayed by the restrained residents and that the use of physical restraints led to further deterioration of social skills. Folmar and Wilson (1989), stated that the deterioration of social functioning can have an effect on the physical functioning of the individual and their level of participation in activities of daily living (ADL's). The researcher's study results showed an increase in the study population's level of participation in ADL's. According to the researcher's test results, there was an indication of an increase in residents' quality of life.

The researcher had the full support of the administrative staff at the midwestern nursing home where the research was conducted. The administrative staff fully supported the restraint reduction program implemented by the researcher. They believed that physical and chemical restraint reduction would
benefit their resident population. The administration at this midwestern nursing home encouraged their staff towards care that would minimize restraint use and encourage the use of alternative measures. This administration also contributed to providing alternative measures to restraint use by hiring additional recreational therapy personnel. This additional personnel was allocated to evening and weekend hours when their rate of incidence seemed to be the highest. The researcher was certain that restraint reduction would continue as a routine part of the care provided to residents at this midwestern nursing home, due to the beliefs of its administrative staff.

Further research in the area of restraint use with the geriatric population is needed. The researcher's literature review to date of 1990 indicated a lack of available research in this area. The literature review was also lacking in the area of alternatives to restraint use. Along with the need for further research in this area, long term care management as well as hospital managements need to become more vocal with their staff about the benefits of restraint reduction.

During this study, the researcher found that
discussion of restraint reduction generally illicited a negative response from the direct care providers at the midwestern nursing home. The researcher felt that this was mainly due to the lack of available alternatives that were known to the staff. Overall reduction in the use of restraints within the health care industry will involve additional time and inserving of health care providers. This inservicing should include the benefits of restraint reduction along with acceptable alternatives. If this time can be taken, the health care industry could be instrumental in changing current attitudes and beliefs of health care providers towards restraint use. The position of federal regulatory agencies in 1990 was to strongly discourage physical and chemical restraint use in skilled nursing facilities. The researcher is hopeful that these federal regulations will motivate the health care industry to create healthier and restraint free environments for our geriatric population.
REFERENCES


Omnibus Budget Reconciliation Act of 1987. Public Law, sections 4201(a), 4211(a), pp. 100-203.


APPENDIX A
CONSENT FORM

Please check your choice below and have your signature witnessed as indicated;

____ I consent to complete participation in this study, which includes use of the patient's records, and consideration for restraint reduction, if approved by the attending physician.

____ I am interested in participation in this study, but need more information. I consent to preliminary use of the patient's records, and consideration for restraint reduction. Please notify me before proceeding any further, or changing the way restraints are currently used.

____ I agree to use of the patient's records for background in this study, however, I agree with the way restraints are currently used and I do not want any attempts made to eliminate restraint use on this patient. (If this is your choice, please include reason for this choice)

________________________________________________________________________

____ I do not wish to participate in this study.
(Please include reason for your choice)

________________________________________________________________________

Facility Representative _______________ Date:____

Power of Attorney _______________ Date:____

Witness ______________________ Date:____

____ Check here if you would like a copy of the study results mailed to you.
**APPENDIX B**

Physical Restraint Reduction
Percentages According to
Type of Restriction
Pre and Post Reduction

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<tr>
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\[ \text{Chi Square} = 10.327 + 1.504 + 0.400 + 1.558 + 5.714 + 11.165 + 1.626 + 0.433 + 1.685 + 6.178 = 40.589 \]

Degrees of Freedom = 4
# Appendix C

## Patient Incident Report Log

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APPENDIX D
KEY FOR INCIDENT REPORT TALLY SHEET

Type:
W=wandering
F=falls
B=behavior
S=skin
O=other (includes lowered to floor)

Location:
R=patient's room
B=bathroom
H=hallway
C=common area (includes dining room)
O=other (includes resident apartments)

Shift:
D=days
P=PM's
N=nights

Effect:
S=significant
M=moderate
O=none

Disposition:
E=emergency room only
A=admitted to hospital
T=treated at facility
O=no treatment, (includes observation only, and negative Cranial Checks)

Notification:
P=physician
F=family/significant other
N=no notification per request
O=no notification necessary

**Contributing Factors:** (multiple answers possible)

- **E**=equipment
- **S**=system, (includes poor policy/procedure)
- **Q**=poor quality of worker
- **P**=patient condition
- **R**=resident's rights
- **O**=none

**Follow up:** (multiple answers possible)

- **R**=repair
- **P**=policy or procedure change
- **T**=teaching/counseling of employee
- **O**=none
**APPENDIX E**

**INCIDENT REPORT SUMMARY**

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# APPENDIX F

OARS MULTIDIMENSIONAL FUNCTIONAL ASSESSMENT QUESTIONNAIRE

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| Subject Number |  |
|----------------|
| Subject's Address | Street & Number | City | State | No Day Yr |
| Date of Interview | 7-8 9-10 11-12 |
| Time Interview Began |  |
| Interviewer's Name | 13-14 |
| Relationship of Informant to Subject | 15 |
| Place of Interview [BE SPECIFIC.] | 16 |
| Subject's Residence [SPECIFY HOME OR TYPE OF INSTITUTION.] | 17-18 |

OLDER AMERICANS RESOURCES AND SERVICES PROGRAM
OF THE
DUKE UNIVERSITY CENTER FOR THE STUDY OF AGING AND HUMAN DEVELOPMENT
DURHAM, NORTH CAROLINA 27710

Revised 1988

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MENTAL HEALTH

31. How often would you say you worry about things—very often, fairly often, or hardly ever?
   0 Very often
   1 Fairly often
   2 Hardly ever
   - Not answered

32. In general, do you find life exciting, pretty routine, or dull?
   2 Exciting
   1 Pretty routine
   0 Dull
   - Not answered

33. Taking everything into consideration how would you describe your satisfaction with life in general at the present time—good, fair, or poor?
   2 Good
   1 Fair
   0 Poor
   - Not answered

Physical ADL

63. Can you eat...
   2 without help (able to feed yourself completely);
   1 with some help (need help with cutting, etc.); or
   0 are you completely unable to feed yourself?
   - Not answered

64. Can you dress and undress yourself...
   2 without help (able to pick out clothes, dress and undress yourself);
   1 with some help; or
   0 are you completely unable to dress and undress yourself?
   - Not answered
65. Can you take care of your own appearance, for example combing your hair and (for men) shaving...
2 without help; 1 with some help; 0 are you completely unable to maintain your appearance yourself?  
- Not answered

66. Can you walk...
2 without help (except from a cane); 1 with some help from a person or with the use of a walker, or crutches, etc.; 0 are you completely unable to walk?  
- Not answered

67. Can you get in and out of bed...
2 without any help or aids; 1 with some help (either from a person or with the aid of some device); 0 are you totally dependent on someone else to lift you?  
- Not answered

68. Can you take a bath or shower...
2 without help; 1 with some help (need help getting in and out of the tub, or need special attachments on the tub); 0 are you completely unable to bathe yourself?  
- Not answered

69. Do you ever have trouble getting to the bathroom on time?  
2 No 0 Yes 1 Have a catheter or colostomy  
- Not answered

a. How often do you wet or soil yourself (either day or night)?  
1 Once or twice a week 0 Three times a week or more  
- Not answered
## APPENDIX G

Statistical Analysis of the Quality of Life-Questionnaire Data Utilizing the Paired T-Test

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</tbody>
</table>
1. antipsychotic drugs - According to OBRA 1987, these are drugs prescribed to control mood, mental status, or behavior.

2. arm restraints - Also referred to as a wrist restraint. Is applied to the wrists and is designed to prevent the resident from interfering with various treatment modalities. Is used for the same purpose as the hand mitts restraint, but is considered to be more restrictive.

3. case manager - A licensed nurse who oversees and coordinates care for an assigned group of residents.

4. chemical restraint - Also known as antipsychotic medications. See antipsychotic drugs.

5. gerichair - A high back chair with a tray table attached, generally on wheels, designed to provide the resident with a source of safety and positioning support when other restraints are not functional.

6. hand mitts - Enlarged, padded mitten shaped restraint which is applied to the hands and is designed to prevent the resident from interfering with various treatment modalities.

7. pelvic restraint - A diaper shaped restraint designed to prevent residents from sliding out of chairs.
8. physical restraint - According to OBRA 1987, these are defined as "any manual method or physical or mechanical device, material or equipment attached or adjacent to the resident's body that the individual cannot remove easily which restricts freedom of movement or normal access to one's body."

9. power of attorney - According to the law offices of Whyte and Hirschboeck, in a power of attorney relationship, one person (principal) authorizes another person (agent) to act in his or her behalf, when he or she is absent or unable. The agent is given control over certain matters and the agent's authority carries the same weight as if the principal had made the decision himself or herself.

10. tardive dyskinesia - A condition which is characterized by continuous movements of the face, tongue, body, and or extremities.

11. vest restraint - A jacket type of restraint designed to provide the resident with proper positioning and safety from injury.

12. wandering - To move about aimlessly or without a fixed course or goal: To stray: To go astray in conduct or in thought, (Webster Dictionary, 1989).

13. wheelchair safety bars - A padded bar extending across the wheelchair in front of the resident, generally used to prevent unassisted transfers or unassisted ambulation and provide for resident safety.