FACTORS INFLUENCING THE USE OF PHYSICAL RESTRAINTS ON ELDERLY PATIENTS IN ACUTE CARE SETTINGS IN ST. JOHN'S, NEWFOUNDLAND

YVONNE M. JACOBS

Factors Influencing the Use of Physical Restraints on Elderly Patients In Acute Care Settings in St. John's, Newfoundland.

Yvonne M. Jacobs, BScN

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ABSTRACT

This exploratory study was an attempt to determine the prevalence of physical restraint use on elderly patients in acute care settings in St. John's, Newfoundland, and to determine factors that influence the use of physical restraints in those settings. The sample consisted of 242 registered nurses working on medical and surgical ward units. Each nurse anonymously completed an investigator devised questionnaire which consisted of: 1) demographic questions; 2) a 42 item Likert scale composed of positive and negative statements concerning nurses' knowledge about restraints, and their perceptions about the physical and organizational environment; and 3) nurses' self-report of the number of elderly patients restrained by different types of physical restraints on their ward unit at that time. Factor analysis was performed and factor scores were correlated with average restraint use per elderly patient. Correlations of four factors were statistically significant. These concerned the ward environment, including both the physical layout and staffing levels; lack of time to carry out nursing care; support of staff from both administration and coworkers for non-restraint decisions; and preference for working with the elderly.

There were differences in types of restraints used by hospitals and by medical and surgical ward units. The most

common types of restraints used were side rails, geriatric chairs, chest restraints, mitts, and chair belts.

The reliability of the Likert scale was quite high (alpha = .8), but there were problems with verifying the accuracy of the measurement of restraint use, which was by self-report and may have been influenced by social desirability. In addition, the correlations between average restraint use and significant factors were low. However, the results indicate that these factors do have some influence on restraint use and need to be explored further.

Three areas of considerable concern were revealed by the study. 1) Nurses' perception of the lack of support from administration and their fear of being blamed if they decide not to use restraints and a patient falls or wanders away. Thus, nurses felt pressured to use restraints when they were unable to observe patients closely due to the physical environment or to perceived shortage of staff or lack of time to carry out their tasks. 2) Due to time constraints, activities such as ambulation, position changing, and frequent observation of restrained patients may not be carried out. 3) Many nurses lacked knowledge about the danger of death resulting from restraint use and felt their patients were safe when restrained.

Due to problems in measuring restraint use accurately and the low correlations, further research and instrument

refinement are recommended. Other recommendations are made for nursing practice, education, and research.

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CHAPTER I

PROBLEM AND PURPOSES

Introduction

The majority of elderly people in Canada are living independently in the community and coping very well. Only 8% live in institutions in which some custody or care is provided (Statistics Canada, 1992a). However, compared to the general population, the elderly occupy an increasing number of acute care beds in hospitals, and they tend to be hospitalized longer than younger people. Those aged 65 and over accounted for 53% of hospital patient days in 1991, and their average length of stay was 23 days compared with 12 days for all age groups (Statistics Canada, 1991).

The effects of illness and being in unfamiliar surroundings in hospital can cause weakness and sometimes confusion in elderly patients. Thus, there is the potential for injury from falls or from wandering behaviour. While elderly people generally prize their independence, hospital staff tend to be very concerned with the safety of patients under their care, particularly those at high risk of injury. This concern frequently results in the use of physical restraints to prevent unsupervised activity. However, restraint use can lead to a decline in physical and mental functioning, and may result in prolonged hospitalization and possible institutionalization. Consequently the individual loses his/her independence and society has to pay the

increasing cost of care.

Restraint use is frequently accepted by nurses as a necessary method of keeping elderly patients safe but, in fact, it conflicts with nurses' role in promoting clients' health, self-reliance, and self-determination. Therefore, it is essential to determine how prevalent restraint use is and what factors contribute to the use of physical restraints on elderly patients in acute care settings. Recommendations can then be made for changes with the expectation of reducing restraint use and increasing the quality of life of the hospitalized elderly.

Problem statement

The potential for hospitalization increases with age so the growth of the elderly population has implications for the health care system. Between 1986 and 1991 the over 65 population in Canada grew by 17.5%, from 2.7 million to 3.2 million, and now comprises 12% of the total population (Statistics Canada, 1992b). The projection for 1990 to 2010 is for a sharp increase in the number of people over 85 relative to those 65 years and over (Stone & Fletcher, 1986). Then, in 2010, the first of the "baby boomers" will reach the age of 65 which will increase this age group.

Hospitalization for any reason may result in a temporary reduction in an elderly person's level of

functioning, however well they may have been functioning in the community. Admission to hospital is a stressful event. The patient has to contend, not only with the physical illness, but also with strangers in an unfamiliar environment. In addition, examinations, tests, and treatments may not be fully understood, and there may be a loss of privacy. These events may upset the elderly individual's normal coping ability. As a result, the individual may appear confused, or at risk of falling. In addition, he/she may actually interfere with treatments. Staff, concerned about safety or completion of treatments, may decide to use physical restraints. Katz, Webber, and Dodge (1981) estimated that restraints are used on 10% of general hospital patients and up to 50% of patients in specialized institutions in Canada. Strumpf, Evans, and Schwartz (1990) estimated that 500,000 people were tied to their bed or chair in hospitals and nursing homes every day in the United States in 1990. Restrained patients tend to be hospitalized longer and have a higher death rate than unrestrained patients (Frengley & Mion, 1986; Lofgren, MacPherson, Granieri, Myllenbeck, & Sprafka, 1989; Robbins, Boyko, Lane, Cooper, & Jahnigen, 1987). Patients restrained longer than four days developed significantly more nosocomial infections and new pressure sores than those restrained for shorter periods, according to a study by

Lofgren et al. (1989). They also found that 60% of restrained patients who had been admitted from home were discharged to chronic care facilities. Miller (1975) reported problems associated with immobility as a result of restraint use. These include contractures of the major joints of locomotion, edema of the lower extremities, and decubitus ulcers. Decreased socialization, and psychological effects such as anger, despair, fear, and depression have been documented as resulting from restraint use (Folmar and Wilson, 1989; Kayser-Jones, 1992; Mion, Frengley, Jakovcic, & Marino 1989; Strumpf & Evans, 1988). In addition, 37 deaths in Canada and the United States, between 1980 and 1987, have been attributed to attempts to escape from physical restraints (Blakeslee, Goldman, Papougenis & Torrell, 1991; Miles & Irvine, 1992).

While physicians order restraints, nurses are usually the ones to request the order. Even though nurses may not like using restraints, they may feel obliged to do so because of situational factors. Restraint use allows nurses to complete tasks and provide custodial care which emphasises safety (McHutchion & Morse, 1989). However, this results in a decline in the physical and mental functioning of elderly patients, reinforcement of dependency, and iatrogenic problems. An alternative rehabilitative approach emphasises independence. With this approach, care

is planned to focus on each individual's strengths, the environment is adapted to increase safe functioning, and activities are encouraged to promote independence (Walsh, Tsukuda, & Miller, 1989). In spite of this alternative, there is widespread use of restraints on elderly patients in hospitals.

No studies have been carried out in Newfoundland to determine the prevalence of restraint use in acute care hospitals or to identify specific factors in the hospital environment that influence the use of restraints.

Significance of the study

It can be seen from the foregoing section that restraint use increases the elderly patient's stress and the chances of a negative outcome in terms of recovery, mental health, and physical functioning, and, ultimately, whether or not the individual is able to return to the community. Thus, the problem of restraint use is a significant one in terms of human cost for the individual elderly patient, and in terms of financial cost for the health care system. As the population of those aged over 65 years increases, the number of elderly patients being hospitalized will also increase. Nurses are currently working under pressure to care for an increasing number of acutely ill and seemingly frail elderly patients with reduced resources due to budget

cuts. They are expected to give good care and prevent harm befalling their patients. If they believe that restraints keep their patients safe, in spite of the evidence to the contrary, they will continue to use them. It is important to determine what pressures and situational factors in the hospital environment influence the use of physical restraints. Recommendations can then be made to address identified educational needs or policy changes.

Research questions

The research questions were as follows:

1. What is the prevalence of physical restraint use on elderly patients in acute care settings in St. John's, Newfoundland, as determined by nurses' self-reports?
2. What factors influence the use of physical restraints on elderly patients in acute care settings in St. John's, Newfoundland?

Purpose of the investigation

The purpose of this exploratory study was to determine the prevalence of physical restraint use on elderly patients in acute care settings in St. John's, Newfoundland and to identify factors which influence the use of physical restraints. This information should help individual nurses, as well as the institutions in which they work, to determine

areas where changes can be made which will lead to the reduction or the elimination of physical restraints. The resulting change in approach to caring for the elderly should improve the quality of life for the hospitalized elderly and increase the chances of returning to independent living.

CHAPTER II

LITERATURE REVIEW

During the last decade there has been an increasing interest in issues related to restraint use and this is reflected in the literature. The purpose of this literature review is to present studies related to the use of physical restraints and factors influencing restraint application on the elderly. While the focus of this study is on acute care settings, literature pertaining to long term care facilities is also included since there are similarities as well as differences in these settings.

The literature review is presented in three major sections. The first section examines the literature concerning physical restraints. This includes the prevalence of, and reasons for, restraint use; the physical and emotional effects resulting from the use of restraints; the effectiveness of restraints; and suggestions for alternatives. Also included are nurses' perceptions about restraints and the reaction of families towards restraints.

Since restraints by their very application prevent independent movement and impede recovery, the second section reviews studies concerned with rehabilitation. This includes studies of the rehabilitative potential of the elderly, as well as the types of care that promote rehabilitation, and the attitude and custodial style of care that prevents or discourages rehabilitation.

The third section presents literature concerning factors influencing restraint use. These includes the organizational environment, staffing levels, nurses' education and knowledge about restraints, nurses' preference in working with the elderly, and the influence of the physical environment on restraint use.

Physical Restraints

Definition of Physical restraints

Restraints are defined as "the use of physical and/or pharmaceutical measures intended to limit the activity and/or control the behaviour of an individual" (Morrison, Crinklaw-Wiancko, King, Thibeault, & Wells, 1987). The focus of this study and this literature review is on physical restraints. The position statement on the use of restraints developed by the Association of Registered Nurses of Newfoundland (1993) defines physical restraints as "an appliance that restricts freedom of movement, for example, vest restraints, lap belts, pelvic restraints, mittens, geriatric chairs with locked trays" (p. 32). Also included is the use of other materials such as sheets to prevent free movement. Issues related to physical restraint use will be presented in this section.

Prevalence of physical restraints

The prevalence of physical restraints is high in North America. Katz et al. (1981) of the Canadian government's Bureau of Medical Devices state that "up to 10% of a general hospital's population may be using some form of restraint or safety device at any one time and this may rise to approximately 50% in some specialized institutions" (Katz et al., 1981, p.10). Cape (1983) compared three long term care facilities in England and Canada. She found that cotsides and other restraints were used eight times more frequently in Canada. Similarly, Evans and Strumpf (1987) compared restraint use in American and Scottish nursing homes and found that 25% of the American nursing home residents were restrained, compared to 4% of residents in the Scottish nursing homes. Strumpf et al. (1990) estimate that 500,000 people are tied to their beds or chairs every day in U.S. hospitals and nursing homes at the present time.

In a cross sectional analysis of patients on four general medical wards, Frengley and Mion (1986) found that 7% of patients were restrained. They felt this was a conservative figure, as weekends and other low staff periods were not included. Every patient was visited each weekday and observed for restraint use. The researchers found that 20% of patients aged 70 years and older were restrained.

The use of restraints on patients admitted to Veteran's

Administration hospitals was found to be between 6% and 17% in two studies which will be discussed in detail later (Lofgren et al., 1989; Robbins et al., 1987). In a comparison of one general medical ward and two rehabilitation medical wards, Mion, Frengley, Jakovcic, and Marino (1989) found that 13% of the 278 general medical patients, and 34% of the 143 rehabilitative patients were restrained at some point during their hospital stay. This study will also be discussed in more detail later.

In order to determine the number of restraints used in two extended care homes and two nursing homes, Magee et al. (1993) observed 173 patients four times a day on Friday, Sunday and Tuesday in one week. They excluded side rails and geriatric chairs and found that 32% of the sample were restrained at least once.

In a study published after data collection for this study, Lever et al. (1994) observed high restraint use in four institutions in southern Ontario. In an acute care hospital, 21% of the patients were restrained. Of these 79% were 65 or older. In a chronic care hospital, 78% were restrained, while 35% of patients in a psychiatric hospital and 12% in an home for the aged were restrained.

These studies indicate that physical restraint use is widespread. Furthermore, the number of restraints used is high.

Reasons for restraint use

Three main reasons are given for restraint use: 1) safety of the patient and of others, 2) control of behaviour, and 3) completion of treatment. More specifically, these include prevention of injury following falls from beds or chairs, especially in the frail or confused elderly; prevention of wandering off the premises or into other patients' rooms; protection of other patients and staff from aggression; and facilitation of treatment, for example by preventing a patient from pulling out intravenous or nasogastric tubes, or catheters (Applebaum & Roth, 1984; Frengley & Mion, 1986; Morse & McHutchion, 1991; Robbins et al., 1987).

Rose (1987) suggests that restraints are also used to maintain body alignment, for instance by preventing the patient sliding down in a wheelchair. She also suggests that geriatric chairs with locked trays can be used to ensure that cognitively impaired patients rest. She does not consider either device a restraint because of the reason given for its use. However, since they restrict freedom of movement, they fall under the definition of restraints.

Specific patient problems, such as communication difficulties, may lead to custodial care and restraint use. Boch and Schilder (1988), who made observations on an acute care ward for eighteen months found that, when there is a

language or comprehension problem leading to increased anxiety in the patient, restraints are more likely to be used. People with strokes, slow speech, aphasia or seizures are most likely to be restrained, as well as those with short term memory problems and weakness or dizziness. Burton, German, Rovner, Brant, and Clark (1992) found that cognitive impairment, when combined with a severe inability to perform activities of daily living, was a strong predictor of restraint use. Likewise, Robbins et al. (1987) found that abnormal mental status score, organic brain syndrome, surgery and the presence of one or more mobility restrictors, such as catheters or intravenous lines were predictors of restraint use.

Boch and Schilder (1988) state that it is easy for nurses to justify using restraints, not only because of official policy, but also because of accepted ward routine which is quickly learned by new employees. In addition, there are certain expectations by co-workers. For instance, Boch and Schilder (1988) found that night nurses expected agitated or unsafe patients to be restrained before the shift change.

Some nurses find it difficult to decide when to encourage independence and when to control activity for safety reasons. Burton et al. (1992) found that in nursing homes that used restraints frequently, nurses were quicker

to assist patients with all activities. This can result in dependency behaviour and patients may lose skills through lack of practice. Other patients may prefer to be independent and will not ask for help (Lamb, Miller, & Hernandez, 1987; Mion, Gregor, et al., 1989). This can cause conflicts between patients and staff and may result in restraint use.

In summary, reasons given to justify restraint use are mainly related to "the prevention of self-inflicted harm through unsupervised attempts to get out of bed or to disrupt medical treatment" (Robbins et al., 1987, p. 294). Restraints are also used to control behaviour and when there are concerns about the safety of others. Patients with certain conditions such as abnormal mental status or communication problems are more likely to be restrained.

Effects of immobility and restraint use

The use of restraints affects both the physical and emotional health of patients. While restraints are intended to keep patients free from harm, the opposite effect can occur. Immobility is enforced by the very application of restraints and, especially in the elderly, this can lead to serious complications. Adverse effects of immobility, from whatever cause, include: decreased joint range of motion; contractures; decreased muscle strength and tone; loss of

bone mass and strength; cardiovascular and respiratory problems; metabolic imbalance; increased risk of pressure sores; and urinary and gastrointestinal problems, including incontinence and chronic constipation (Harper & Lyles, 1988; Miller, 1975; Mobily & Kelley, 1991). These changes make individuals more prone to falls and subsequent injury. In addition, psychological changes such as depression, behaviour changes, and alterations in perceptual ability may occur (Mobily & Kelley, 1991).

Selikson, Damus, and Hamerman (1988) used a retrospective case-comparison study design to investigate the risk factors associated with immobility. Eighty nursing home residents were categorized according to ambulatory status. The 42% who were non-ambulatory were used as cases, while the 15% who were ambulatory were used as controls. Chart review and physical examination were carried out, specifically focusing on neurological, musculo-skeletal, mental and psychological status, and visual acuity. The researchers found that immobility was significantly associated with contractures, poor vision, a history of hip or leg fractures, and severe dementia. Limitations of the study included lack of chart documentation as to the cause of the immobility. In addition, data on restraint use, psychosocial factors, and environmental problems were not reliable.

In a classic study, Miller (1975) presented case histories of attempts to rehabilitate six ambulatory elderly patients who had become immobile following medical or surgical treatment. Miller attributes the immobility to iatrogenic (physician induced) and nurisgenic (nurse induced) causes. Treatments leading to immobility included: prolonged bedrest for congestive heart failure; four weeks bedrest for a diabetic prior to, and following amputation for gangrene; and a patient with Parkinson's disease instructed not to weight bear for six weeks as treatment for a dislocated head of femur. Another patient had a surgical hip pinning but received no rehabilitative therapy during her month in hospital. The sixth patient became immobile as a result of depression. Nurisgenic factors included prolonged restraint use and a lack of nursing instigated rehabilitation. In all cases, Miller states that a mixture of fear, pain, psychosocial and psychological factors, as well as a lack of rehabilitation contributed to immobility. He described classic symptoms such as bizarre movements when the patients attempted to stand, and scissoring when attempting to walk. Since these symptoms are reversible with intensive rehabilitation therapy, Miller stressed the importance of recognizing the "combined psychologic, somatic and/or kinetic pathologic results of prolonged immobilization" (Miller, 1975, p. 366).

Scott and Gross (1989) report two incidents of brachial plexus injury resulting from the combined use of vest restraints, attached towards the head of the bed, and wrist restraints attached at the side. In both cases the head of the bed was elevated and it was believed that this caused the vest restraints to ride up into the axilla while the wrist restraints pulled downwards. Hand and wrist weakness resulted and, in one case, persisted one month later.

Lever et al. (1994) determined that restrained patients in an acute care hospital and an home for the aged received significantly more laxatives than non-restrained patients in the same institution.

Frengley and Mion (1986), in their study of four medical wards in a US hospital, unexpectedly found that the patients who were restrained were hospitalized twice as long, and had a higher death rate than unrestrained patients. The researchers queried whether the use of restraints led to low morale and thus to a poor outcome and, also, whether there was a difference in staff attitude towards these patients.

Two prospective studies were carried out in Veteran Administration Hospitals concerning restraint use. Since this is a specialized population, findings may not apply to the general hospital population. In one study, Lofgren et al. (1989) found that patients restrained more than four

days developed significantly more nosocomial infections and new pressure sores than those restrained for shorter times. The length of time restrained was the only independent predictor. This was confirmed using both univariate and multivariate analysis. Like Frengley and Mion (1986), the researchers also found a high level of mortality (21%) among the restrained patients. They could not account for this in their study but postulated that, since it is more difficult to turn and examine restrained patients, they became medically as well as socially isolated and received less intensive care. Six percent of the patients were restrained and almost half of these patients were taking medication that would affect mental status. The researchers noted that 42% of the patients placed in restraints were admitted from home but, upon discharge, 60% of those patients went to chronic care facilities. It should be noted that geriatric chairs were excluded from this study. This study is limited as it did not contain a control group of unrestrained patients, so the researchers were "unable to establish a causal relationship between the use of mechanical restraints and morbid events" (Lofgren et al., 1989, p. 737).

The second study, by Robbins et al. (1987) also took place in a veteran's hospital. The researchers attempted to identify potential predictors of restraints from information obtained upon admission, and from events occurring during

hospitalization, such as surgery or room changes. Restraints were used on 17% of the study sample for an average of three days. In this study, as in Frengley and Mion's study, length of hospital stay for restrained patients was longer (mean of 20 days) than for unrestrained patients (8 days). Restrained patients had eight times the risk of unrestrained patients of dying during hospitalization. Statistical analysis showed that abnormal mental status score, organic brain syndrome, surgery and the presence of at least one mobility restrictor (catheter, intravenous tubes etc.) increased the risk of restraints. It was also found that patients rarely had a normal mental status examination while restrained, even if it had been normal on admission. The researchers postulated that the stress of hospitalization may have unmasked a mild organic brain syndrome.

Only two studies were found in the literature that attempted to determine how restraint use affects patients emotionally. Strumpf and Evans (1988) interviewed patients concerning their restraint experiences. They categorized the responses as anger, fear (e.g. of being trapped in a fire), resistance, humiliation, demoralization ("I felt I was dirt"), discomfort, resignation ("I gave up"), denial and agreement (p.134). Similarly, Mion, Frengley, et al. (1989) interviewed 13 medical and 29 rehabilitation patients while restrained. They found anger, resistance, and demoralization

expressed by patients. Denial, compliance, resignation, and indifference were other recorded reactions. A third study, a case study by Kayser-Jones (1992) describes the despair and depression experienced by a 94 year old man admitted to a nursing home on a temporary basis for care of a leg ulcer. Although described as alert, orientated, and cooperative, he was restrained physically in case he fell. When he became agitated by this, he was chemically restrained. When he died two months later, "the physician on the research team said he may have died from a myocardial infarction precipitated by the severe anxiety and stress imposed by the use of restraints" (Kayser-Jones, 1992, p. 17).

Folmar and Wilson (1989) made random observations of 112 nursing home residents in an exploratory study of the effects of physical restraints on social behaviour. Observations lasting 20 minutes were made during the day. A total of 31 residents were observed at least once while restrained. Geriatric chairs, wheelchairs and side rails were not considered restraints for the purposes of this study. Behaviour was categorized as social, ritual, and nonsocial. No ritual behaviour was recorded. Nonsocial behaviour was observed in 76% of restrained and 37% of non-restrained patients. Only 19% of restrained patients engaged in social behaviour compared to 48% of non-restrained patients. The researchers noted that three of ten patients

observed both with and without restraints, exhibited significant social behaviour while unrestrained. When restrained they were nonsocial. The researchers called for more research to confirm their findings of a positive relationship between restraint use and low social functioning. They expressed concern that socialization, the last area over which cognitively impaired residents have control, should be reduced by staff actions.

Likewise, Robbins et al. (1987) were concerned about patients' dignity when restraints were used to prevent stuporous and terminally ill patients from removing catheters, oxygen, intravenous and feeding tubes.

Hazards of restraint use, both direct and indirect, have been reported in research studies. The danger of strangulation and injury as a result of restraint use are documented by Katz et al. (1981) and Dube and Mitchell (1988). They cite incorrect application, language barriers, and patients being left unattended for long periods as contributing causes. Blakeslee et al. (1991) state that 37 deaths have been attributed to the use of restraints in Canada and the United States between 1980 and 1987. Most deaths were from strangulation as patients tried to escape from the restraints. However, two deaths resulted from patients setting fire to their restraints. In a retrospective analysis of 122 deaths caused by vest and

strap restraints, Miles and Irvine (1992) found that most victims were women with a median age of 81 years in nursing homes. Asphyxiation occurred because the person slid down and her weight was held by the restraint and caused pressure around the chest, preventing her from inhaling. Miles and Irvine (1992) maintain that these preventable deaths from restraint use cause at least 1 in every 1000 nursing home deaths.

These studies illustrate the detrimental effects of immobilization and restraint use. Although restraints are applied in order to keep patients safe, there is a risk of injury from the restraints themselves, and from the hazards of enforced immobility. Blakeslee (1988) observed that patients who were ambulatory on admission and subsequently restrained, needed two people to assist them to walk a month later. She stated "we had rendered them helpless in thirty days and crippled them safely" (Blakeslee, 1988, p. 833).

Effectiveness of physical restraints

Several studies raise questions about the effectiveness of restraints for agitated patients, in containing wandering, and in preventing falls. Werner, Cohen-Mansfield, Braun, and Marx (1989) observed 24 agitated and cognitively impaired nursing home residents for three minutes every hour round the clock during a three month period. Using their

Agitation Behaviour Mapping Instrument they found that residents, when restrained, exhibited significantly more strange movements and noises, and total agitation than when not restrained. They noted also that agitation did not decrease with prolonged restraint use, nor in the hour after restraint application.

Hernandez and Miller (1986) questioned the effectiveness of physical restraints when they observed a woman, restrained with a belt restraint, walking round the room with the chair, to which she was tied, strapped to her back.

Morse, Tylko, and Dixon (1987) observed a sample of 100 patients who fell during a four month period, in a general hospital that included a long term care unit and a ward for veterans. Falls resulted when five patients climbed over the side rails or the end of the bed while still restrained. Innes and Turman (1983), in an analysis of falls during one year in a geriatric department, found that 41% of falls occurred when both side rails were up, and in 67% of these cases physical restraints were also in use. In addition, restraints were being used in 37% of the falls from chairs and in 60% of the falls from wheelchairs. Similarly, Rainville (1984) reported that a patient who had removed his wrist restraint, was found on the floor with his Posey chest restraint still attached to the bed.

Rader, Doan, and Schwarb (1985) found that when wandering patients with dementia were restrained, their agitation and anxiety increased and confrontations with staff resulted. Blakeslee et al. (1991) also found that restraining frightened and confused patients led to increased panic and combativeness.

Tinetti, Liu, and Ginter (1992) studied 397 mobile patients, initially unrestrained, in 12 skilled nursing facilities for one year. Of the 122 patients subsequently restrained, either continuously or intermittently, they found that 17% experienced serious fall related injuries compared to 5% of the unrestrained patients. They wondered if the staff had managed to identify and restrain a high risk group. However, they also noted that restraints had failed to protect these patients from serious injury.

Magee et al. (1993) found that, of the 86 patients who fell in the six month period prior to their study, 24 (28%) were restrained at the time of the fall, 19 of them with vest restraints.

These studies indicate that physical restraints are not effective in preventing falls and may cause increased agitation and anxiety.

Alternatives to physical restraints

There are many suggestions in the literature for

alternatives to restraints. Some innovations may be expensive, such as the initial outlay for a specialized Alzheimer's unit to allow for wandering in a safe area, or the installation of door alarms or locking devices (Blakeslee, 1988; Evans & Strumpf, 1987; Rader et al., 1985). Less expensive methods are available. Ambualarms and bed-check alarms are devices that sound an alarm to alert nurses that confused or unsteady patients need assistance (Widder, 1985). Ambualarms are attached to patients' legs, just above the knee, with a velcro band. When the position of the leg changes from horizontal to vertical, such as when the leg is dangling over the side, or a sitting patient stands, the alarm sounds (McHutchion & Morse, 1989; Widder, 1985). The bed-check alarm is a pressure sensitive pad placed under the patient in bed. When the pressure is absent for a predetermined number of seconds, the alarm sounds (McHutchion & Morse, 1989). These devices are not successful in every case, which emphasises the importance of individualized care. Widder (1985) obtained good results with the Ambualarm which was tested on 16 patients who were at high risk of falling on an orthopaedic and a general medical floor. No patients using the alarm fell during the trial. However, McHutchion and Morse (1989) found that confused patients removed the ambualarms, and also nurses found them difficult to hear. They also found that the four

second delay on the bed-check alarm gave nurses insufficient time to prevent a patient falling from the bed. When adjusted for a shorter delay time, there were many false alarms.

Hospital beds tend to be higher than those patients are used to at home. The solution is often to routinely put up side-rails. The problem then arises that, if a patient's calls for assistance are not answered and/or if the patient is confused and needs to get to the bathroom, the individual will try to get out of bed over the side-rail. The potential for injury is thus increased. Dr. Peter Millard, a professor of geriatric medicine at St. George's Hospital, London asks:

> Why do we train people to lift others in and out of bed? Why not just lower the bed? And, though the bed is too high and patients might fall out and hurt themselves, we're scientists, so we put up bars. It's the same with chairs. We don't select different sized chairs in hospitals. We have the same size chair for all patients and we train nurses to lift people in and out....The same with incontinence pads; we automatically put them on everyone. Combined with the fact that they can't get in and out of bed or chairs, we then wonder who's proving who right (Restrained in Canada, 1980, p.22).

In addition to lowering the bed as much as possible, partial side-rails can be used which allow patients a safe way to get out of bed (Barbieri, 1983; Blakeslee, 1988; McHutchion & Morse, 1989). Regular toileting, bedside commodes, and night lights are additional safety precautions (Lamb et al., 1987).

With regard to falls, English (1989) found that, when a restraint free policy was instituted, although the number of falls increased the number of injuries did not. Hernandez and Miller (1986) conducted a two year study in which a fall prevention protocol was implemented on a 21 bed psychogeriatric ward. They found that falls decreased by 42% in the first year and another 39% in the second year. Since there was no control group, a retrospective partial audit was done for comparison. With the new protocol, restraints were not considered acceptable. Strategies employed included: leaving side-rails down; providing a nightlight and a bedside commode; pinning the call bell to the patient's gown; providing constant supervision; and grouping high risk patients at times when staff were short.

Rader et al. (1985) advocate the necessity of understanding the confused patient's "agenda behaviour" when he/she wanders or does not cooperate. Interpreting the behaviour as the need for security, or to be useful, or fear and lack of understanding concerning procedures, helps the

staff plan interventions that provide a safe resolution instead of confrontation, increased anxiety, and probably restraint use. Case studies are used to describe the effectiveness of this approach which allows the agenda behaviour to run its course without interference. During this time, staff ensure the patient's safety, for instance, by accompanying the patient who walks off the unit or premises.

Mitchell-Pederson, Fingerote, Powell, and Edmund (1989) also state that, in order to reduce restraint use, it is essential to understand the problem causing the patient's behaviour that puts him/her at risk of being restrained. Through case histories, they illustrate the importance of close observation in order to detect subtle behaviour changes that indicate the patient is about to wander or become aggressive. Armed with knowledge of the patient's likes and dislikes, and actions that will defuse the situation before it escalates, the staff are able to prevent problem behaviour. Therefore, the researchers stress the importance of individual assessment and care.

Another way of dealing with wandering behaviour, without the use of restraints, was tested in a small study by Hussian and Brown (1987). They noted that patients with dementia tended to react to two-dimensional patterns (e.g. contrasting colours of floor tiles, spilled water, or areas

of glare on the floor) as if they were three-dimensional objects. Using a sample of eight male patients suffering with dementia in a state mental hospital, they measured, as a baseline, the number of attempts to exit from the locked ward. They then placed grid patterns of masking tape on the floor, using, at different times, 3, 4, 6, and 8 vertical strips horizontally, and one 10 strip pattern vertically. They found a significant reduction over the baseline, in attempts to cross when the 8 strip vertical pattern was used. However, one individual was unaffected by the grid patterns and it was noted that he never looked at the floor. The researchers note that the study is limited because of the small numbers, individual reactions, and the fact that the observations were made on individuals. Responses might be different if the individual was accompanied by others who crossed over.

In summary, there is evidence that patients can be kept safe by various methods without resorting to restraint use, and without reducing their independence or functional ability.

Nurses' perceptions of restraints

Nurses are usually the ones to initiate restraint use, either following a physician's order or, in emergency situations, applying the restraint and obtaining an order

afterwards. However, many nurses feel ambivalent about applying restraints. The perceived need to keep the patient safe by applying restraints conflicts with their values and ideals as a nurse and the need to preserve patients' independence. Strumpf and Evans (1988) interviewed primary care nurses to determine nurses' opinions of the reasons for restraint use, the effects of restraints, their knowledge of alternatives, and their decision making process. Twenty restrained patients cared for by these nurses were also interviewed. Nurses volunteered more reasons for restraint use than did their patients. However, although nurses stated that they would rather restrain a patient then have him/her fall, there were also comments about feelings of guilt, of feeling like a jailer, and wondering if it really was for the patient's good.

DiFabio (1981) interviewed 15 psychiatric nurses concerning their feelings about restraining patients in situations which included threats to others and suicide attempts. Categories of responses included anxiety, inadequacy, frustration, isolation, guilt, fear, and preoccupation with the need to be in control. Nurses found the event of restraining patients very emotional and felt they lacked support in dealing with their feelings.

Quinn (1993) interviewed 20 nurses and used a grounded theory approach in her study to determine nurses'

perceptions about physical restraints. The four themes that emerged were: goal orientation, multiple meanings of restraints, feelings of distress, and redefinition. She found that nurses faced the moral dilemma of balancing patients' rights with their own professional responsibility to keep patients physically safe. The latter took precedence. Nurses who felt uncomfortable using restraints redefined restraints in terms of their function (such as keeping the patient safe) and thus were able to block out personal feelings. The nurses also tended to stereotype and objectify patients to distance themselves from the patient's feelings. Likewise minimizing the restraint by comparing it to a car seat belt, and justifying restraint use as a preventative measure, allowed them to rationalize the use of restraints. Quinn noted that nurses seemed to have an unrealistic expectation that no falls should occur and this led to them to accept patient suffering and their own discomfort in using restraints.

Hardin et al. (1994) administered a 24 item attitude questionnaire about restraints to nursing staff in two extended care and two nursing home units in a Veterans' facility (in a study published after data collection for this study was completed). They found that nursing staff, regardless of position, education, and clinical experience, had a moderately favourable attitude towards restraint use.

They also found that nurses who collaborated with other staff, especially physicians, had a higher score on the attitude test. This implied that they felt more support for the use of restraints.

In summary nurses have mixed feelings about using restraints but justify using such devices by feeling they are fulfilling their professional responsibility in keeping patients safe.

Family reactions to restraints

Little was found in the literature concerning family reactions to restraint use. Powell et al. (1989) state that a common reaction of people on seeing a family member restrained is "one of distress amounting almost to horror and of profound sadness" (p.562). However, they state that families soon become convinced that professionals know best, and that restraints are necessary for safety, and they may even suggest them for other patients. Morse and McHutchion (1991) stated that families expressed relief when told restraints would be removed once they were assured that continuous monitoring would ensure their relatives' safety.

In a qualitative study, published after the data for this study had been collected, Newbern and Lindsay (1994) interviewed 6 wives of patients who were or had been restrained in a Veterans' Affairs medical centre. The major

theme that emerged was the finality that restraints symbolized - the end of life as it had been for the couple. Minor themes were the need to control the use of restraints; denial and concealing of the restraint; anger at staff at the original institution who had restrained the husband; and the feeling that restraints degraded their husbands. The authors point out that the setting of the study was an institution for rehabilitation rather than a nursing home where the goals are different.

Ejaz, Folmar, Kaufmann, Rose, and Goldman (1994), in a study published after data collection for this study, reported that six families refused removal of restraints from residents at two skilled nursing care facilities during the restraint reduction program described later. This is similar to findings from informal interviews with chronic care staff during the investigator's clinical experience when it became apparent that restraints are sometimes used at the insistence of families. In spite of feeling that restraints should not be used, staff were reluctant to remove them under such circumstances, in case an injury should occur. These nurses stated that they felt that nurses, because of their professional expertise, should decide whether restraints should be used. While families should be informed, they did not believe they should be consulted. However, another nurse described the relief

expressed by a daughter when told her mother would no longer be restrained. She had not previously expressed her feelings about the use of restraints and had not been aware she could request they not be used.

In summary little attention has been focused on the reaction of families when a family member is restrained. While some feel very upset they are often unwilling to speak out and may even come to accept restraints as necessary and advocate using them. In other cases families may insist on restraints in the belief this will keep their relative safe.

Rehabilitation of the Elderly

Restraint use encourages an assembly line type of care with the emphasis on patient safety and the completion of tasks. This is the hallmark of custodial care. Patient dependency frequently results. The alternative approach is a rehabilitative one, which emphasises individualized care, encourages independence and, as a result, involves taking risks within a safe environment (Walsh, Tsukuda, & Miller, 1989). It also involves a different style of nursing which tends to appear disorderly as patients' needs are met when they arise, rather than care being given in a routine way convenient to staff (Baker, 1983; Morse & McHutchion, 1991). Rehabilitation fosters independence by assisting the patient to attain or maintain his/her optimal level of functioning

through flexible, innovative, and individualized planning of care. This section of the literature review presents studies of the rehabilitative potential of the elderly, and of different types of nursing care.

Rehabilitative potential of the elderly

Since muscle weakness can contribute to falls, muscle strengthening exercises can be seen as a preventive measure. Fiatarone et al. (1990) provided ten frail, institutionalized, nonagenarians with an eight week, high-intensity, resistance training program. Participants were ambulatory, and any chronic conditions were stable. Lifting and lowering leg exercises, with progressive increase in loads, were performed three times a week under controlled conditions. The nine participants who completed the program all had significant gains in muscle strength and functional mobility. However, four weeks after the program ended, there was a significant loss of strength as the patients returned to their regular low level of activity. The researchers concluded that disuse atrophy, rather than aging changes, contributed in part to the loss of muscle strength and this is reversible.

A study by Parry (1983) examined the effectiveness of referring 97 patients, average age 87 years, to a physical rehabilitation unit after treatment in acute care units.

Orthopaedic problems accounted for 58% of the conditions, cerebral vascular accidents for 18%, and general debility, following surgery or admission for a medical condition, accounted for 13%. The remaining 11% suffered from various conditions such as arthritis, Parkinson's disease etc. For 47% of admissions significant improvement in the areas of activities of daily living, bowel and bladder control, and the ability to do light housekeeping were recorded. Limited improvement was seen in 32%, while there was no change for 18%, and 3% became worse. Of those who showed no improvement, severe organic brain syndrome and other secondary diagnoses were factors. Fifty-six percent of patients were able to return to the same setting from which they were admitted, and 15% were discharged to live with family members. Twenty-two percent were discharged to nursing homes. Of the 80 surviving patients, 6 to 18 months later, 64% were still living in the community, while 36% were in nursing homes. The researchers note that the patients were all admitted directly to rehabilitation from acute care units, and received continuing medical supervision of medical conditions, which improved the chances of a positive outcome.

Jackson (1984) assessed the progress of 23 elderly patients admitted from acute care medical units to a geriatric rehabilitation unit in a hospital in British

Columbia. A comparison was made with ten elderly patients who met the admission criteria but remained on a separate medical unit. Gerontological nursing education sessions were provided for staff prior to the beginning of the project. A 35 item assessment tool, based on Katz (1970) Index of Activities of Daily Living and Plutchik's (1970) Geriatric Rating scale, was used together with Folstein (1975) Mini-Mental Status test for assessment every two weeks for six weeks. Significant changes in dressing, bathing, and balance, plus decreased confusion and restlessness at night were found in the rehabilitation group. Decreased incontinence, improved social skills and mental status were also observed. The researchers noted that new patients were referred by nurses from the ward with the rehabilitation unit but not from the other ward. They suggested that the latter staff lacked geriatric assessment and nursing skills, and possibly held negative views of the rehabilitative potential of the elderly. They suggested more research in these areas.

The fact that one third of the orthopaedic beds at Sunnybrook Hospital in Toronto were taken up for as long as three years, by elderly patients awaiting placement, led to the introduction of a new approach to the care of elderly patients with fractured hips (Dubrovskis & Wells, 1988). With the assistance of a geriatrician and a clinical nurse

specialist, a plan of rehabilitative care was developed. The aim was to discharge all patients within three weeks, either to convalescence, home with homecare support, or back to institutions. Assessments were made using a modified Katz (1970) Activities of Daily Living Index and Folstein (1975) Mini-Mental status test. Primary nursing was provided and nurses rotated through the position of clinical nurse coordinator. Close observation, orientation, regular toileting, and attention to nutritional needs were among the rehabilitative interventions. Recognition of the extra time needed for feeding and ambulation led to work load adjustments. As a result of the program, 99 of the 100 patients admitted in one year were discharged after a mean length of stay of 16.74 days. Sixty nine went for convalescence, 21 went home with homecare assistance, and nine went back to the admitting institution. Beds were thus available for new admissions and staff had a more positive approach to caring for the elderly. No longterm follow up of patient outcome was reported.

English (1989) found that, when a restraint free policy was introduced and a rehabilitative approach to care implemented at Vancouver General Hospital, there was a 49% reduction in length of stay. This was attributed to the fact that even patients being discharged to nursing homes needed less care and, therefore, were placed sooner.

In summary elderly patients do benefit from rehabilitation even if they are unable to return to their own homes. By emphasizing rehabilitation, patient and staff morale is improved and the time spent in hospital can be reduced.

Dependency and custodial care

Staff perceptions of the elderly as dependent and in need of protection lead to a custodial style of care, which emphasizes routine, task-orientated work directed towards physical maintenance and patient safety (Bagshaw & Adams, 1985-6). The use of physical restraints is, therefore, likely where custodial care is practised (McHutchion & Morse, 1989). This, together with adherence to rigid routines and limited choices available to patients, can result in decreased independence and a loss of functional skills.

Baker (1983), in a study described later, found that staff expectations of dependency acted as a self-fulfilling prophecy. Likewise, Waters (1987), who studied the outcome of hospital discharges for 32 elderly patients from four geriatric wards of a hospital in England, found that sixty-two percent of the participants were less independent following hospitalization than they were before it. Waters suggests this may partly be due to the debilitating effects

of an acute medical condition, but may also be the result of the care received in hospital which fostered dependence. The average age of participants was 82 years, and the average length of hospital stay was 23 days (excluding one long stay patient). The most common reasons for admission were falls or collapse at home, then cardiovascular problems. All participants were interviewed between the fifth and tenth day post discharge, and were assessed using Katz Index of Activity of Daily Living (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963), a researcher devised questionnaire of instrumental activities of daily living, and Isaac and Walkey's (1964) mental status examination.

Baker (1983) used participant observation to compare two different styles of nursing in one 31 bed ward designated for both rehabilitation and long stay male patients in England. The ward sister practised individualized patient care, treated patients with respect and understanding, and put patient needs before those of visiting physicians, calls to the phone etc. She tried to manage staff by planning their work carefully and by acting as a role model. However, the staff followed the norm for geriatric care when she was not on duty. They expected the patients to be dependent and followed rigid routines, stressing tidiness and completion of tasks over patients' needs. This custodial style of nursing was generally

supported by nursing administrators and physicians. The ward sister, therefore, lacked administrative support in fighting the accepted norms and culture. In addition, physical facilities were extremely poor, and inadequate staffing prevented anything more than minimal care being given. Thus, the ward sister's attempts at patient centred, rehabilitative care were thwarted.

In summary, elderly patients can become dependent and lose functional ability when staff expect them to be helpless and adhere to rigid routines.

Type of care and nurses' attitudes towards elderly

Several studies have examined the relationship between the type of care given and nurses' attitudes towards elderly people in general. In a study of psychosocial variables affecting nursing home care, Bagshaw and Adams (1985-6) found that a custodial attitude towards treatment was positively related to a low level of empathy and a negative attitude towards the elderly. Three hundred and sixty three staff (registered nurses, practical nurses and aides) from seven nursing homes volunteered to take part in the study. The Kogan Old People Scale (1961), the Gilbert and Levinson Custodial Mental Illness Scale (1956), and LaMonica's Empathy Construct Rating Scale (1980) were administered to participants. Registered nurses were found to be

significantly more empathic, less custodial, and less negative in their attitudes towards the elderly than other staff. Practical nurses were significantly less custodial and less negative than aides.

Similarly, a study by Heller, Bausell, and Ninos (1984) found that negative attitudes towards the elderly were associated with perceptions of custodial care, while positive attitudes were associated with a rehabilitative orientation. Kogan's Attitude towards Old People Scale (1961) and Kosberg's Rehabilitation Perception Questionnaire (Kosberg & Gorman, 1975) were administered to a sample of 183 registered nurses and practical nurses drawn from three nursing homes. Although all three homes had similar official rehabilitative policies towards care, there was a statistically significant difference in the attitudes of staff at the different institutions. No other demographic data, such as age or education, reached statistical significance. Actual care given was not measured.

In an attempt to determine how all levels of staff in a nursing home perceived the rehabilitative potential of the elderly, Kosberg and Gorman (1975) constructed a 29 item questionnaire. This consisted of statements concerning functional abilities and potential for improvement, care requirements, and the need for, and effectiveness of, programs and services. Preferred responses were determined

by three social workers. Cumulative scores were computed for each participant. Low scores indicated a custodial approach, while high scores indicated a rehabilitative approach. One hundred and fifty seven questionnaires were completed. Of these, 99 were from volunteers, board members, family or residents. Nonprofessional nurses (e.g. aides) constituted the largest group of staff (21) taking part, while other groups (nurses, social workers, therapists, secretaries, housekeeping) numbered less than nine each. These are, therefore, small numbers for comparison. Social workers and nurses had the highest score, while therapists were evenly divided, and only 15% of the nonprofessional nurses were positive. As in the Bagshaw and Adams' study (1985-6), those doing most of the hands on care had more negative attitudes.

While these studies indicate different attitudes towards the elderly by different levels of staff, no comparison was done of actual care given.

Factors Influencing Physical Restraint Use

While the main reasons for restraint use may be attributed to concerns for patient safety, situational factors within the hospital environment also contribute to restraint use. Literature pertaining to five factors will be reviewed in this section. These are: the organizational environment, staffing levels, education and knowledge of

restraints, nurses' preference in working for the elderly, and the physical environment.

Organizational environment and restraint use

The organizational environment of an institution includes administrative policies, as well as leadership and supervision by those in authority. Literature on these areas, as they relate to restraint use, will be reviewed in this section.

The existence of policies and procedures regarding restraint use implies that their use is expected by administration. Often the onus is on the nurse to decide whether to use restraints and to obtain a physician's order later. Thus any nurse wishing to avoid the use of restraints needs to be sure that the administration would support this action.

When English (1989) instituted a restraint free policy at Vancouver General Hospital, administrative staff and nursing staff at all levels were involved in the step-by-step process. This gradual approach and strong administrative support ensured acceptance of the changes. A trial project was carried out and, while the number of falls increased, the number of injuries did not. Within ten months, most of the long term care patients were unrestrained and wearing street clothes. An unexpected

finding was a 49% reduction in length of stay in the unit. In addition, staff morale had increased.

In an article published after data for this study were collected, Ejaz et al. (1994) stressed the importance the involvement and encouragement of administrative staff. The Kendal Corporation of Pennsylvania was hired to provide education and training in an effort to reduce the use of restraints in two skilled nursing care facilities. Half-day workshops were held for 131 nursing staff, social workers, rehabilitation and recreation staff as well as administrators from the two facilities. In addition, separate programs were held for physicians, trustees, residents, and residents' families in order to help facilitate change. Each facility then developed its own restraint reduction plan, starting with one unit at a time, and releasing first those at least risk of falling or wandering. Restraint use before and after the implementation of the program was assessed by observations of the research assistant twice daily, by chart records, and nurses' observations. Of the 144 initially restrained residents in the sample, 118 (82%) were completely free of restraints six months later. Twenty-two of the remaining patients had partial reduction of restraints. Non-serious falls increased significantly. Serious falls totalled 4 prior to restraint reduction and 7 afterwards. Staffing patterns were

unchanged. The majority of residents released from restraints were cognitively impaired and little change in cognitive or physical status was noted after restraint removal, so recognition of the efforts by staff by the administration was important. The authors attributed the success of the program to the education provided and the support given by administrative staff, as well as the visible research component, possibly promoting competition between the facilities.

The importance of a commitment from administration and the involvement of other key people in order to establish and successfully implement policies for restraint reduction is stressed in several studies, as is assessment and the development of protocols along with education programs (Bloom & Braun, 1991; Calabrese et al., 1992; Eigsti & Vrooman, 1992; Harry & Kopetsky, 1991; Kallmann, Denine-Flynn, & Blackburn, 1992; Masters & Marks, 1990; Mion & Mercurio, 1992; Morrison et al., 1987; Werner, Cohen-Mansfield, Koroknay, & Braun, 1994).

Administrative leadership is needed, not only to reduce restraint use but also to ensure proper care of those restrained. Schnelle et al. (1992) evaluated a management system designed to improve care of restrained elderly nursing home patients, in compliance with a new federal law in the United States. There were three phases to the study.

The first phase involved the monitoring of 63 restrained patients in two nursing homes. Invisible ink marks were applied by research staff to the centre of the knots of restraints. Rounds were made hourly to check whether the restraint had been released and the knot retied, in which case the ink spot would have moved. The ink mark was only visible when a black light from the researchers' instrument shone on it. Two researchers made observations and inter-rater agreement was 91%. The number of times the knot was moved ranged from once to seven times per day per patient. Baseline measurements continued for seven days. More than half the patients were restrained for longer than two hours in both facilities (54% and 60%). Even when restraints were untied, re-positioning did not necessarily occur. Therefore, during phase 2, staff in one institution were instructed to place residents on a different coloured cushion every two hours. This permitted easy monitoring by management, as a specific colour was to be used for each two hour period. This phase lasted five days during which time the other facility remained as the control. The coloured cushions were then introduced at the second institution. Monitoring by the researchers with the black light continued in both facilities for five days, and checks were made at three and six weeks for 12 hours each time. There was a significant reduction in the number of patients restrained for more than

two hours in phase 3 (9.26% and 19.4%). In addition, in response to nursing aides' complaints that they were unable to change the pads on time, management responded by reducing the number of restraints. However, the number of patients restrained longer than two hours increased at both follow up times. The researchers state this was due to a decrease in the number of monitoring rounds by management staff. The researchers stress the importance of quality assurance monitoring. They also note that changing the coloured pad does not ensure that patients are ambulated. They are currently devising a program to assess whether patients are being exercised. This study illustrates the importance of management's role in monitoring quality of care.

Concerns about legal liability influence decision making by both administrators and individual staff. Malpractice insurers, and legal guidelines in American professional journals stress the importance of protecting patients from harm, including self injury (Fiesta, 1991; Francis, 1989; Strumpf & Evans, 1988). Institutions are liable for the actions of staff, and since incidents resulting in injury occur more frequently without restraints, McHutchion and Morse (1989) suggest this may be the reason administrators feel comfortable with their use. However, while there have been no lawsuits in Canada for nonuse of restraints, there have been for misuse

(Hollingsworth, 1986; Powell, Mitchell-Pederson, Fingerote, & Edmund, 1989). In the United States also there have been successful lawsuits when improper restraint use resulted in injuries (Blakeslee, 1988).

In a study by Applebaum and Roth (1984) involving observation, descriptive data, and patient interviews, eighteen cases of involuntary treatment and/or restraint use were found over an eleven week period on two general medical wards. All but one patient had significant mental impairment and the restraints were mostly used in order to carry out treatments.

As Stabler-Haas and McHugh (1992) state "The nurse walks a tightrope between the need to prevent patient falls and harm and the reality that unconsented touching, in the absence of an emergency situation, is assault and battery" (p. 30). Thus restraint use raises legal concerns about both restricting individual freedom and informed consent.

In summary active administrative support and supervision is necessary for restraint reduction and to ensure the proper care of restrained patients. Both institutions and individual nurses also have to consider legal liability when caring for patients, with or without restraints.

Staffing levels and restraint use

There are conflicting views in the literature as to the influence of staffing levels on the type of care given. Hernandez and Miller (1986) found that increased levels of staff merely increased confusion and anxiety levels in a psychogeriatric ward. The number of falls was not decreased. Likewise, Innes and Turman (1983) found that more falls occurred during the day and evening shifts when more staff were on duty. However, Morse, Tylko and Dixon (1987) found that excessive workloads contributed to falls as patients had to wait so long for call bells to be answered that they would try to go to the bathroom without help.

Magee et al. (1993) expected that restraint use would be inversely proportional to the number of nursing staff but they found that fewer restraints were used on Sundays when there were fewer staff on duty. However, they found that patients who were restrained were restrained for longer continuous periods at these low staff times. They postulated that more restraints were used during day shifts because more staff were available to get patients out of bed and these patients were then restrained in chairs.

Prescott, Dennis, Creasia, and Bowen (1985) obtained completed self-report questionnaires from 1044 staff nurses and 536 physicians from 15 general hospitals across the United States in a descriptive study designed to determine

factors associated with vacancies and turnover of registered nurses in hospitals in the United States. Interviews were also conducted with a random sample of 161 study participants. Four factors were identified as contributing to "working short", that is, "working in a situation in which nurses perceive that there are too few or the wrong kind of staff to adequately care for the number or type of patients" (Prescott et al., 1985, p. 127). In addition to problems with the supply of nurses and the vacancy rate, participants identified transient shortages. These were due to illness, bad weather, or following excessive overtime, as well as inexperienced staff or relief nurses who were not able to carry a full load. The fourth factor was associated with financial problems resulting in the allocation of the wrong type of staff for the needs of patients on the units. The reported impact on patients included decreased monitoring; treatments, such as ambulation and re-positioning done late, or less frequently than ordered; the omission of psychosocial care; increased errors; and lack of continuity of care. Shortages of nurses in some areas, such as gerontology, were attributed to their unpopularity and the heavy care involved.

When there is a shortage of staff, custodial care, including the use of physical restraints, is often assumed to save nurses time. However, Strumpf et al. (1990) state

that proper care of a restrained person includes surveillance, inspection, release of restraints, exercise, toileting, and evaluation. They quote the Kendal Corporation figures that this requires 4 hours and 35 minutes in a 24 hour period to be done properly. However, the time needed to care for a moderately to severely cognitively impaired patient, without restraints, is 2 hours and 43 minutes in a 24 hour period according to Hu, Huang, and Cartwright (1986). They examined diaries, kept for a 2 week period, by nurses documenting time and cost of care. Morse and McHutchion (1991) found that, although not statistically significant, nursing time was not increased when restraints were removed. However, nursing contacts, due to increased observations, did increase. Ejaz et al. (1994) in a study concerning restraint reduction (published after data collection for this study) found there was no change in staffing patterns when restraints were removed. The average was 3.20 nursing staff per patient per day which was comparable to other similar facilities in Ohio.

There is some disagreement as to whether the number of staff, or the style of care, is more important in determining restraint use. The style of care is linked to knowledge and this will be discussed next.

Education and knowledge of restraints

Nurses need specific knowledge in order to make informed decisions, particularly those involving the use of restraints.

Stilwell (1991) surveyed a random sample of 500 Maryland nurses to determine the number of hours of instruction they had received on the use of restraints, and whether alternatives were available at their place of work. One hundred and sixty eight questionnaires were returned. Less than one hour of instruction on the use of restraints on older adults was reported by 63% of nurses. Similarly, 53% reported less than one hour instruction on restraining adults, and 78% reported less than one hour on restraining children. Only 12% agreed that death was a risk factor. Forty-five percent reported that alternatives were available, but drugs or medications were the most common alternative suggested.

A questionnaire developed to determine knowledge, attitude, and nursing practice regarding restraint use was completed by 118 out of 600 nursing staff of a large nursing home (Janelli, Scherer, Kanski, & Neary, 1991; Scherer, Janelli, Kanski, Neary, & Morth, 1991). Items for inclusion were derived from the literature, and from the suggestions of five gerontological nurses. Respondents were asked to answer true, false, or not sure to the 18 questions on the

knowledge scale; always, sometimes, or never to the 18 questions on the nurse practice issues; and on a five point Likert scale, ranging from strongly agree to strongly disagree, to the 11 questions on the attitude scale. Content validity was determined by five expert gerontological nurses and five nurses pilot tested the questionnaire. The reliability coefficient for the attitude scale was .67. No other reliability results were reported. Seventeen respondents were registered nurses (RNs), 38 licensed practical nurses (LPNs) and 63 nursing assistants. Twenty four percent had family members in nursing homes and 18% had elderly relatives who were restrained. RNs scored significantly higher in total knowledge. However, the researchers were concerned that 82% of respondents believed it acceptable to restrain a patient lying flat in bed; 50% believed sheet restraints were acceptable at times; and 56% were unaware that improper restraint use could cause death (Janelli et al., 1991). While 62% agreed that if they were patients they should have the right to refuse restraints, 64% thought the nursing home had the legal responsibility to use restraints for safety reasons, and 62% did not think family members should be allowed to refuse their use (Scherer et al., 1991). The researchers felt that this ambivalence showed that staff, in fact, felt negatively about using restraints.

The importance of continuing education was demonstrated in a study by Yarmesch and Sheafor (1984) who analyzed the responses of 23 nurses to four vignettes in order to determine nurses' reasons for the use or non-use of physical restraints, chemical restraints, or a combination of both. The nurses worked in an 880 bed hospital with psychiatric, medical, and nursing home units. Nurses were not asked to identify the unit on which they worked. A wide variety of actions and reasons were obtained. For the four vignettes there were 81 decisions to use restraints, with or without alternatives, and only 10 to use alternatives alone. The three nurses who had taken continuing education on care of the elderly gave more therapeutic responses than those who had not done so.

The use of mandatory education sessions as part of a restraint reduction is reported in several studies, two of which were published after data were collected for this study. The study by Ejaz et al. (1994) was described earlier and highlighted the importance of an education program prior to the successful implementation of restraint reduction plan. Half-day training workshops emphasised the importance of, and built on the experience of participants. In addition, educational programs were provided for administrators, staff who did not provide hands-on-care, trustees, physicians, residents, and residents' families.

This helped to ensure all staff understood the goals of the program and helped to facilitate change.

Similarly, Werner et al. (1994) provided mandatory inservice education for all staff prior to the gradual removal of restraints. The education program included information about the dangers of restraints as well as available alternatives and the evolution of the new policy. Restraint use decreased from 31% to under 2% after 2 months. The use of antipsychotic medications also significantly decreased for these residents. No change was found in the number of falls or pressure sores, nor in involvement in recreational activities. While no significant differences were observed after restraints were removed, residents who had been restrained were more cognitively impaired, less able to perform activities of daily living and more frequently incontinent than never restrained residents. When restraints were removed, there was a statistically significant decrease in agitation and aggression, as measured by the Cohen-Mansfield Agitation Inventory (Cohen-Mansfield, Marx, & Rosenthal, 1989).

Principles of adult education and change theory guided education programs such as one designed by Strumpf, Evans, Wagner, and Patterson (1992) for nursing home staff. Attendance was found to be a major problem for the 10 session pilot program. The 38 staff attended an average of

four sessions each and only eight completed pre- and post-tests. Even though there was an improvement in beliefs about the lack of effectiveness of restraints, they still showed the propensity to believe in the effectiveness of restraints and be willing to continue to use them. Restraint use increased slightly immediately after the program but did decline three months later. The types of restraints changed also, so that fewer vests were used. In addition, intermittent, rather than continuous use increased. Strumpf et al. (1992) noted that considerable turn over of nursing staff and administrative staff reduced the effectiveness of the program. In addition, staff were not convinced of administrative support. A revised program was developed with these problems in mind. The program was offered in two homes, one of which also had 12 hours a week of consultation. Preliminary results showed a reduction in restraint use in both homes.

Coberg, Lynch and Mavretish (1991) held education sessions for nursing staff and the health care team to increase knowledge about the effects of restraints, to provide information about alternatives to restraints, and to allow discussion about the implementation of a policy of restraint reduction. All staff, including housekeeping, security, and service staff, as well as trustees, and physicians were involved, as were residents and families.

After six months, restraints had been discontinued on all 15 demented residents in the unit. Staff support and discussion of alternatives were provided by the rehabilitation nurse. No new admissions were restrained. On-going education and support sessions were provided to ensure the continuing success of the non-restraint program.

In an experimental study, Hamrin (1982) developed a 24 item questionnaire to determine whether, after a nine month educational program, there was a change in the attitude of staff towards the activation of stroke patients in a Swedish hospital. Sixty nurses on two medical wards participated in the educational program. Simultaneously, an activation program for stroke patients was introduced on those wards. The control group consisted of 54 staff who worked on two other medical wards. The instrument was tested for reliability by the test-retest method at another hospital. Eighteen staff answered the questionnaire twice, three months apart. A five point Likert scale was used for responses. The final questionnaire contained 23 items. A subscale measuring attitude consisted of seven positive and seven negative statements. These items were also tested, at the second hospital, using an inter-item analysis. The Cronbach's alpha was 0.77 for this scale. No significant improvement was found after three months, but after six months there was a significant improvement on the attitude

scale, and also improvement in knowledge of stroke. A major problem involved the high turn over of staff, especially untrained auxiliaries. Only one third of the staff responded on all three occasions. Some results were not quantified, but the researchers noted an increased interest in stroke patients and their problems. This resulted in the presentation of the education program on the control ward.

In conclusion, there is evidence of lack of instruction regarding the use of restraints and nurses exhibit a lack of knowledge about the dangers of restraints and available alternatives. Continuing education appears to be an effective part of restraint reduction programs and in improving attitudes towards rehabilitation of the elderly.

Nurses' preference in working with elderly patients

The use of restraints may be linked in part to nurses' preference for working with elderly patients.

In a study of nursing shortage in the United States, Prescott et al. (1985) state that patient diagnosis, age, and dependency levels were factors contributing to staffing vacancies. Certain types of patient problems were unpopular with some nurses. Specifically mentioned were geriatric patients, patients with orthopaedic problems and those with chronic respiratory problems. Reasons reflected a preference for the satisfaction that comes with cure, rather than

caring for patients who do not get better.

If staff are unhappy with their work situation or are feeling frustrated because of their workload, there is always the danger that restraints could be used as a punitive measure. Pillemar and Brachman-Prehn (1991) conducted telephone interviews with 577 randomly selected staff from 31 nursing homes in the United States. Ten percent reported that they had physically abused patients and six percent stated that they had used restraints excessively. Staff burnout, patient aggression, and conflict between staff and patients were significant predictors of physical abuse.

In the study by Glasspoole and Aman (1990) in New Zealand, the researcher-devised questionnaire included questions about how rewarding nurses found aspects of geriatric nursing care, nurses' reasons for working with the elderly and happiness in doing so. Results indicated that 62% had a special interest in the elderly and 88% usually felt happy working with them. Behavioral problems such as shouting out, aggression, and bowel incontinence were identified as unrewarding. Monotony was also cited, as was the monitoring of wandering patients. Solutions suggested by participants included increased staffing to allow more time for psychosocial care. The researchers also suggested education on the management of behavioral problems.

Jones and Galliard (1983) devised a questionnaire to evaluate the attitudes of staff in a Scottish psychiatric hospital towards geriatric psychiatry. Two hundred and thirty two staff (registered nurses, nursing auxiliaries, and students) completed the questionnaire and demographic information. This represented 80% of the full time staff. The 17 item questionnaire was given on two occasions to assess consistency of response. Responses were analyzed using the SPSS statistical package and frequencies were reported for only 5 of the items. No further information on reliability and validity was available. The researchers were surprised to find that the majority of the staff preferred working in the psychogeriatric unit, found the work rewarding, and experienced minimal distress. The researchers felt that these results could be contributed to the positive cultural environment of the hospital, and the follow up available for patients in the community.

Winger and Smyth-Staruch (1986) also looked at the willingness of nurses to work with the elderly by combining items from two questionnaires, one concerning staff attitudes towards geriatric psychiatry (Jones & Galliard, 1983), and one concerning activation of stroke patients (Hamrin, 1982). The resulting 40 item questionnaire was given to 300 nurses in a medical centre. Questions were also asked about knowledge of, and liking for seven types of

geriatric nursing units. Eighty one long term care and psychiatric nurses and 112 acute care nurses completed the instrument. Factor analysis of the combined questionnaire responses resulted in subscales measuring knowledge and attitude towards rehabilitation and geriatrics; attitude towards working with elderly patients in medicine and psychiatry; and self-evaluation of knowledge of geriatrics and rehabilitation. No differences were found in knowledge and attitude between nurses working in the two areas. While the nurses had a positive attitude towards geriatrics and rehabilitation, they were significantly less positive about working with the elderly. The researchers suggest that increased knowledge alone will not increase nurses' willingness to work in geriatrics.

Armstrong-Esther, Sandilands, and Miller (1989) studied attitudes and behaviours of nurses towards the elderly in an acute care setting in Canada. The three part questionnaire, contains demographic questions; Kogan's (1961) Old People scale; and questions on care and workplace preference. In four areas of basic nursing care, respondents were asked to rate, on a 10 point Likert scale, the importance of these activities, how pleasant they found them, and the importance of these activities for the elderly. Other questions concerning flexibility of such activities as meal times, treatments, therapy, and sleep/wake time, were rated both

from the patient's point of view, and for efficient operation of the ward. No reports of how the questionnaire was devised nor of reliability and validity were reported. Eighty-two registered nurses, registered nursing assistants, and volunteers completed the questionnaire. The researchers found a relationship between a positive attitude towards the elderly and a preference for working with elderly patients. They also found a relationship between working in rehabilitative areas and a positive attitude towards the elderly. Nurses who preferred surgical areas had less positive attitudes. The researchers postulated that this might be due to the fact that there is normally a rapid turn over in surgical areas. Since elderly patients tend to recover more slowly, they may have been perceived as blocking beds needed for others. Staff who rated talking to patients as more important than basic care, had more positive scores on the attitude scale than those who considered basic care more important. Thus, those who considered psychosocial care more important scored higher than those who were task orientated. The researchers stated that an overall analysis showed no significant difference between the groups in terms of education. In spite of the small numbers and stating that further analysis should therefore not be done, they did attempt to do so and found that both registered nurses and volunteers had more positive

attitudes than registered nursing assistants.

In conclusion, nurses vary in their preference for working with elderly patients. Some nurses find less satisfaction from certain aspects of care and from long term care and this affects their willingness to work with the elderly. Other nurses derive satisfaction from caring for elderly patients. A positive attitude towards elderly people in general does not necessarily reflect a preference for working with elderly patients. Unhappiness or frustration with the work situation may lead to restraint use.

Physical environment and restraint use

Problems with the physical environment also influence restraint use since nurses are likely to apply restraints when concerned about patient safety due to lack of space.

Baker (1983) describes the poor physical environment of the geriatric ward in which she carried out her study:

> The two lavatories were not wide enough for a nurse to assist a helpless patient, therefore any assistance with cleaning up had to be given in the thoroughfare outside. There were no window curtains or bed curtains. The beds were so close together that it was difficult to use screens and impossible to use the side shelves and drawers of some lockers (p. 104).

Innes (1985) also found small bathrooms to be a problem with respect to fall risk, as well as elevators that are not flush with the floor.

Mion, Frengley, and Adams (1986) categorized the nursing care needs of 87 patients aged 75 and older on two medical wards. Four of the eight categories were concerned with activities of daily living, and the others with communication, mental and emotional needs, pain and technical needs. The researchers found that mobility was restricted both by the nursing time available to assist patients to ambulate, and the physical environment. Lack of hand rails and cluttered floor space made ambulation difficult.

McHutchion and Morse (1989) state that hospital units divided into four-bed rooms make it hard for nurses to observe patients and time is spent looking for wanderers. Warshaw et al. (1982) noted that, while single rooms may enhance privacy, they can increase the isolation and possibly confusion of older patients due to sensory deprivation. This may increase when there are no communal areas for socialization and ambulation.

Kayser-Jones (1989) compared the quality of care and resident satisfaction in open wards and semi-private rooms in a 1270 bed nursing home. In a combined qualitative and quantitative design, she used a Quality Evaluation System

tool together with participant observation and interviews. In the open ward, 88% of the residents preferred this type of accommodation because it decreased loneliness and there was increased socialization. Residents stated that they were concerned about incompatible room mates in semi-private rooms, and being unable to contact staff if call bells were unanswered. In the open ward, staff were always visible and it was easier to get their attention, sometimes with the help of other residents. Since residents could see when nurses were busy with someone else, this led to better interaction and understanding. It must be noted that other factors, such as decor, programs and administration, also influenced the quality of care on this ward.

Thus, there is evidence that the physical conditions under which nurses work help determine the type of care given. Concern for patient safety in such an environment may lead to the use of physical restraints.

Summary of the Literature

Highlights from the literature review indicate that the use of restraints on elderly patients is common, both in hospitals and nursing homes. Restraints contribute to immobility problems, prolonged hospitalization, and the emotional stress of elderly patients. In contrast, rehabilitation programs improve physical functioning and

increase the chance of a positive outcome of hospitalization. The most common reason given for applying restraints is to protect the patient. However, restraints can cause harm and it is questionable that they are effective. Even though alternatives are available, many nurses, in spite of ambivalent feelings, believe they have to use restraints in order to keep patients safe. Patient characteristics influence the type of care given and patients' families have varying influences on the use of restraints.

There is conflicting evidence about the influence of staffing levels on the type of nursing care given, but dissatisfaction with the work situation, and the stress of working with insufficient staff may lead to increased restraint use. Organizational factors, such as policies, legal concerns, and lack of administrative support and supervision can contribute to restraint use and misuse. Aspects of the physical environment can influence the type of care given and may contribute to restraint use. There is evidence that nurses lack knowledge about the negative effects and dangers of restraint use. Continuing education appears to be an effective part of a restraint reduction programs.

Conceptual Framework

The conceptual framework for this study is based on the foregoing literature review and on the investigator's clinical experience. The literature suggests that various aspects of the environment influence the prevalence of physical restraints on elderly patients both in the hospital and the nursing home settings. Kayser-Jones (1992) and Wright (1988) both developed models to explain environmental influences on patient care in nursing homes. While Kayser-Jones' model is specific to restraint use, Wright's model addresses more generally the type of care given. For the purposes of this study a conceptual model was developed showing the influence of environmental factors on the use of restraints on acute care ward units.

In Kayser-Jones' model (1992), the resident is central and the model illustrates the interaction between the nursing home resident and environmental factors which may lead to restraint use. The resident's physical functioning, cognitive status, sensory-perceptual status, gait, balance, and mobility are all seen as strong indicators of restraint use. The way the resident appraises and reacts to the environment determines restraint use. The environmental factors consist of the physical, organizational, cultural-psychosocial, and personal/supra-personal environments.

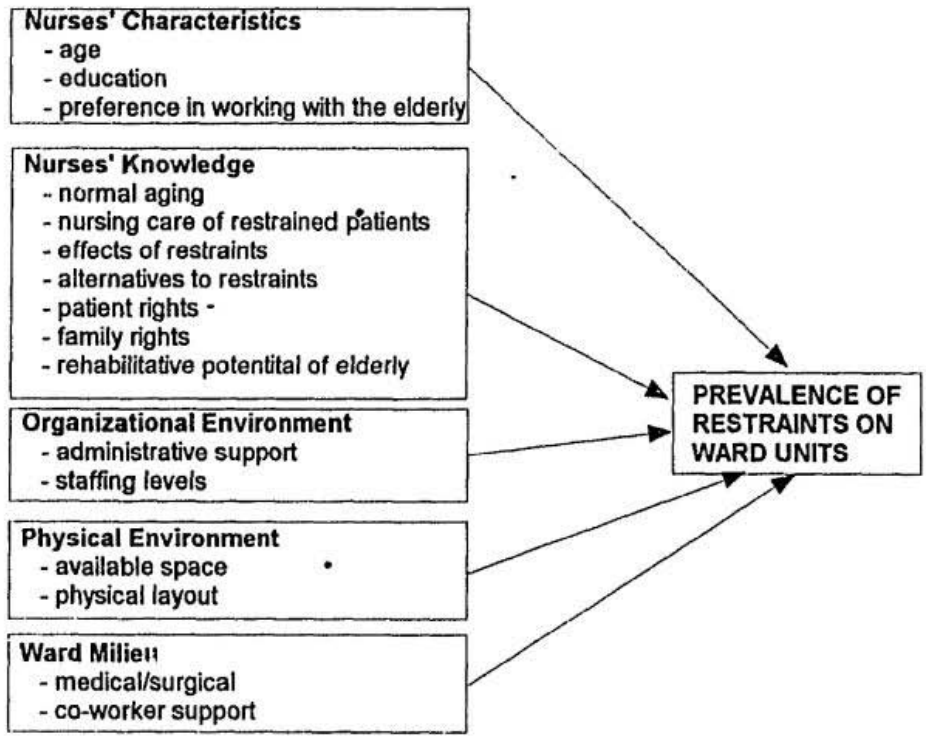
In Wright's model (1988), on the other hand, the

nursing staff are pivotal. She envisions the institution's socio-cultural environment as determining attitudes towards the behaviour of nursing home residents. This, in turn, determines the type of care given by nursing staff. Wright states that different staff will behave in different ways depending on their own experiences, beliefs, and comfort level. She describes this as their "strategies for action". She uses, as an example, the fact that one nurse may use diapers on an elderly patient while another nurse would help the resident regain bladder control. Her model shows "the relationship between the socio-cultural environment as a tool kit which shapes attitudes towards behavior in the form of strategies for action" (Wright, 1988, p. 815). The socio-cultural environment consists of staff characteristics (age, ethnic background, and educational level), facility characteristics (physical and organizational), and patient characteristics (age and care needs).

With the foregoing in mind, a model (Figure 1) was developed for the purposes of this exploratory study, to explain the multiple environmental influences in acute care settings which may result in the use or non-use of restraints in wards units. Five factors are considered in the model. These are: nurses' characteristics, nurses' knowledge, the organizational environment, the physical environment, and the ward milieu. The way each factor

Figure 1

Conceptual model of factors influencing the use of physical restraints on elderly patients on acute care wards



influences the use of physical restraint will be discussed in turn.

Nurses' characteristics, specifically age, education, and preference for working with elderly patients, help to determine what Wright (1988) describes as their "strategies for action" and thus the application or non-application of restraints.

Nurses' knowledge includes knowledge in the following areas: the normal aging process; the nursing care needs of patients who are restrained; the effects of restraints on elderly patients; alternatives to restraints; and the rights of patients and families with regard to restraint use. Nurses who lack knowledge about normal aging may resort to the use of restraints if, for instance, they are unaware that unfamiliar environments and procedures may cause confusion in the elderly. Nurses who are knowledgable are more likely to investigate the person's previous capabilities and provide needed support during the adjustment time (Radar et al., 1985; Mitchell-Pederson et al., 1989). Likewise, the assumption that elderly people are likely to fall and hurt themselves may result in the use of restraints, especially if nurses lack the knowledge that restraints do not prevent falls and injuries (Innes & Turman, 1983; Morse et al., 1987; Tinetti et al., 1992). Restraint use may also occur if nurses lack knowledge of

effective alternatives to restraints (Janelli et al., 1991; Stilwell, 1991).

Undue concern for patient safety may also result in restraint use if the nurse lacks the knowledge about the rehabilitative potential of elderly patients and the effects of restraints. Exercise to increase muscle strength will prevent future falls (Fiatarone et al., 1990; Parry, 1983), whereas restraints result in muscle weakness and may even cause injury and death (Dube & Mitchell, 1986; Frengley & Mion, 1986; Katz et al., 1981; Lofgren et al., 1989; Miles & Irvine, 1992; Miller, 1975;). In addition, concern for patient safety may be heightened by fear of legal action and may lead to the use of restraints if the nurse lacks knowledge about the dangers of restraint use (Blakeslee et al., 1991; Dube & Mitchell,1988; Katz et al., 1981; Miles & Irvine, 1992) as well as patient and family rights with regard to restraint use (Powell et al., 1989; Scherer et al., 1991).

The organizational environment also influences the prevalence of restraints. Nurses who feel they would lack administrative support if an unrestrained patient falls and hurts him/herself are more likely to use restraints whenever they are concerned about falls or wandering (English, 1989; Schnelle et al., 1992). In addition, restraint use is the likely outcome if nurses feel that there is a shortage of

staff, thus making it difficult to observe elderly patients frequently to ensure they are safe.

The physical environment includes the available space in the ward unit for patients to get around safely in rooms and bathrooms. It also includes the general layout that permits observation of patients to ensure they are safe. If there is inadequate space and patients cannot be easily seen, then fall risk increases (Innes, 1985; McHutchion & Morse, 1989) and restraints may be used to ensure the patient does not attempt to get around without supervision.

The ward milieu also influences the prevalence of physical restraint of elderly patients. Ward units tend to vary in the pace of activity and recovery rates. Thus, nurses' expectations and experience would also vary and contribute to the ward milieu and prevalence of restraint use on that particular ward unit. A new nurse joining the staff, while bringing her own "tool kit" (Wright, 1988), would be influenced by the values and beliefs of the other staff members in that ward unit with regard to care and restraint use (Baker, 1983; Boch & Schilder, 1988). Nurses on units where the modal characteristics of patients tend towards younger, acutely ill patients who recover quickly would have developed a tool kit based on that experience. Elderly patients, perhaps with chronic as well as acute conditions, who recover more slowly would not be the norm

and nurses might find it difficult to adjust to the slower pace and different needs of the elderly. Restraints may be used in the belief that the patient is safe while nurses are busy with acutely ill patients or post-operative patients. Similarly, a wandering, cognitively impaired patient would more likely be restrained in a busy acute care ward.

The model for this study illustrates five factors that influence the use of restraints on elderly patients in ward units: nurses' characteristics and knowledge, the organizational environment, the physical environment, and the ward milieu. Each exert an influence on the prevalence of physical restraints of elderly patients on ward units.

Definition of Terms

For the purposes of this study the following definitions have been developed:

Elderly patient: an individual aged 65 years and over, admitted as a patient in an acute care setting.

Nurse: a registered nurse working on a medical or surgical ward unit in an acute care hospital.

Ward: ward refers to a nursing unit in an acute care setting.

Questionnaire: researcher devised instrument used for this study called Questionnaire re: Care of the elderly in acute care settings.

Physical restraints: " an appliance that restricts freedom of movement" (Association of Registered Nurses of Newfoundland, 1993). This includes Posey vest/chest restraints, geriatric chairs with trays, side rails, wrist and ankle restraints, mitts, pelvic restraints, chair belts, bed belts, Houdini security suits, and Segufix body restraints. Also included are bed sheets used to prevent free movement (Stilwell, 1991).

Prevalence of restraints: the number of different types of physical restraints used on elderly patients on a ward unit as measured by nurses' self report in Section 3 of the Questionnaire re: Care of the elderly in acute care settings.

Nurses' characteristics: defined as those factors unique to each nurse which influence the individual's appraisal of the situation on the ward unit and the decision about the use of restraints. Operationalized as age, education, and preference for working with elderly patients as reported in Sections 1 and 2 of the Questionnaire re: Care of the elderly in acute care settings.

Nurses' knowledge: defined as nurses' knowledge about normal aging; the effects of restraint use; the nursing care involved in caring for a restrained patient; knowledge of patient and family rights in regard to restraint use; and knowledge of the rehabilitative potential of the elderly.

Operationalized as the responses to statements in Section 2 of the Questionnaire re: Care of the elderly in acute care settings.

Organizational environment: defined as a) the amount of support from nursing administrators/supervisors as perceived by nurses in regard to the use or non-use of physical restraints on elderly patients; and b) as the adequacy of staffing levels on ward units as perceived by nurses. Operationalized as the responses to statements in Section 2 of the Questionnaire re: Care of the elderly in acute care settings.

Physical environment: defined as the physical layout of the unit, and the amount of space available in the ward and in bathrooms to allow for nursing observation, and for safe ambulation of elderly patients, as perceived by nursing staff. Operationalized as the responses to statements in Section 2 of the Questionnaire re: Care of the elderly in acute care settings.

Ward Milieu: defined as the type of unit, medical or surgical, and the amount of co-worker support perceived by nurses for the use or non-use of restraints. Operationalized as the self report of nurses in Section 1 regarding the specific unit type, and the responses to statements in Section 2 of the Questionnaire re: Care of the elderly in acute care settings.

Summary

A review of the literature concerning physical restraints, the rehabilitation of the elderly, and factors influencing restraint use has been presented in this chapter. This was followed by the conceptual framework developed to guide the study, and a definition of terms used in the study.

CHAPTER III

METHODS

Research Design

The study was exploratory, designed to determine the prevalence of physical restraints on elderly patients and factors that influence restraint use in acute care settings in St. John's, Newfoundland.

Setting

The study was conducted on the medical and surgical units of the three acute care hospitals in St. John's, Newfoundland. Questionnaires were distributed to and collected from registered nurses on the designated units during a three month period, June to September, 1993.

Sample and Sample Selection

Participants in the study had to meet the following criteria: be registered nurses working on one of the medical or surgical units of the three acute care hospitals in St. John's, Newfoundland. Nurses working on intensive care, coronary care, emergency, gynaecology, oncology, maternity, and psychiatric units were not included.

The original number of registered nurses working in the target units in the three hospitals was 413. However, this number was reduced to 382 due to resignation, long term leave (maternity, workman's compensation), and the fact that

a large number of casual nurses were not called in to work during the duration of the data collection.

The sample consisted of the proportion of the population who returned completed questionnaires. A total of 245 questionnaires were returned. However, three did not meet the criteria for inclusion in the study (one was completed by a registered nursing assistant, one by a nurse who stated she worked in intensive care, and the third lacked information about the unit). The remaining 242 questionnaires represented an overall return rate of 63% (Table 1). The lower return rate from hospital 2 may be explained by the fact that two ward units were closed immediately prior to data collection. Nurses from those units filled in on other floors as holiday relief. Table 2 presents the number and percentage of medical and surgical nurses in the sample. In addition, 18 nurses working on a mixed medical and surgical unit participated in the study.

Data Collection Procedures

Copies of the proposal and of the letter of approval from the Human Investigations Committee were sent to the directors of nursing of all three hospitals involved in the study. The directors were asked to forward the documents to the ethical review committees of their hospitals. Approval to conduct the study was received from all three hospitals.

Table 1

Population and sample of nurses from each hospital in the study

	Total	Hospital		
		1	2	3
	no. (%)	no. (%)	no. (%)	no. (%)
Population				
Original	413	84	141	188
Revised	382	80	121	181
Sample	242 (63)	59 (74)	52 (43)	131 (72)

Table 2

Number and percentage of medical and surgical nurses in sample

	Total no. (%)	Medical no. (%)	Surgical no. (%)	Med/surg no. (%)
Population	382	132	225	24
Sample	242 (63)	68 (52)	156 (75)	18 (75)

each collection envelope was designated by the nurse manager.

In order to increase the return rate, a follow up letter (Appendix E) was distributed to each individual two weeks later (Woodward, Chambers & Smith,1982). The letter thanked those who had completed and returned their questionnaires, and encouraged cooperation from those who had not yet done so.

Ethical Considerations

Several precautions were taken to protect the rights of participants. The study was submitted for review to the Human Investigations Committee of the university and to the ethical committees of all three hospitals. A letter of explanation (Appendix C) accompanied each questionnaire. This letter explained the purpose of the study, stressed that participation was voluntary, and assured the respondent of anonymity. Anonymity was ensured in two ways: (a) no names appeared on the questionnaires or on the return envelopes; and (b) completed questionnaires were returned in individual, sealed envelopes to a large collection envelope on each ward unit. Thus individuals could not be matched with completed questionnaires.

Completion of the questionnaire was taken as consent to participate. No risks were entailed through participation in

An information letter describing the study (Appendix A) was given to each director of nursing and also sent to all nurse managers in participating units in each hospital. The nurse managers were asked to notify their staff about the upcoming study using the information sheet (Appendix B) provided by the investigator.

The investigator contacted each nurse manager personally in order to a) answer any questions about the study; b) discuss the criteria for inclusion in the study; c) to stress that participation was voluntary and that anonymity was assured; and d) make arrangements for the distribution of the questionnaires and for the collection of completed ones on each participating unit.

The names of all registered nurses working on the medical and surgical units were obtained from the nurse managers so that envelopes and explanatory letters (Appendix C) could be personalized. Nurse managers were asked to distribute the envelopes to the nurses on their units.

Each nurse was given an envelope containing the letter of explanation about the study (Appendix C) and a copy of the questionnaire re: care of the elderly in acute care settings (Appendix D). A return envelope was also enclosed and respondents were asked to put the completed questionnaire in this envelope, seal it, and leave it in a large collection envelope on each ward unit. The location of

the study, and only 10 to 15 minutes were needed to complete the questionnaire. While no benefits could be guaranteed to respondents, they were informed that their participation could lead to recommendations to improve patient care and increase nursing satisfaction. Respondents were informed that a summary of the study findings would be available from the investigator at the address on the letter, or from the nursing office of each hospital.

Instrumentation

The literature was reviewed to determine if there was an existing instrument which could be used to answer the research questions. No single, suitable instrument was found. Many studies examined patient characteristics which lead to restraint use (Boch & Schilder, 1988; Burton et al., 1992; Mion, Frengley et al., 1989; Pillemar & Brachman-Prehn, 1991; Robbins et al., 1987). Instruments that examined staff attitudes were specific to long term care (Kosberg & Gorman, 1975), or to certain conditions, such as stroke (Hamrin, 1982), or psychiatric conditions (Jones & Galliard, 1983). None of these related specifically to restraint use. A questionnaire on knowledge, attitude, and nursing practice regarding restraint use (Janelli et al. 1991; Scherer et al., 1991) was directed towards nursing home staff or critical care nurses and did not cover all

areas of concern to the investigator.

A questionnaire was, therefore, developed by the investigator in an attempt to explore the relationship between nurses' self-report of the prevalence of physical restraints and the following: (a) nurses' characteristics including preference for working with the elderly; (b) nurses' knowledge about the use of restraints, the nursing care of restrained patients, the effects of restraints, alternatives to restraints, patient and family rights, and the rehabilitative potential of elderly patients; (c) nurses' perceptions of support from administration for non-use of restraints; (d) nurses' perceptions of the adequacy of staffing levels; (e) nurses' perceptions of the physical environment of their ward unit; and (f) nurses' perceptions of co-worker support for decisions not to use restraints

In addition, a question asked nurses whether they were satisfied with the care they were able to give elderly patients. If they were not satisfied, they were asked what changes they would like to see in their unit or hospital.

Items were devised from information obtained from a review of the literature, from interviews with registered nurses working with the elderly, and from the investigator's clinical experience. In addition, modified items from the following existing instruments were included: the questionnaire on knowledge of restraint use (Janelli et al.,

1991); the questionnaire on perceptions of the rehabilitative potential of institutionalized elderly (Kosberg & Gorman, 1975); and the attitudes towards the activation of stroke patients (Hamrin, 1982; Winger & Smyth-Staruch, 1986).

The 56 item questionnaire (Appendix D) was divided into three sections. In an attempt to increase response rates, the questionnaire was constructed so that questions about the number of restraints used, which might be considered sensitive, came in the last section, while demographic and non-threatening questions came first.

The 11 questions in section 1 were designed to gather demographic data: age, sex, ward unit, length of time in nursing and on present unit, work status, education, attendance at inservices on care of the elderly and whether or not the individual had read articles about restraints.

Section 2 contained 42 positive and negative statements concerning nurses' knowledge about restraint use, the nursing care of restrained patients, the effects of restraints, alternatives to restraints, and the rights of patients and families; nurses' perceptions of the physical layout of the ward unit; nurses' perceptions of the adequacy of staffing levels and the support from administration and coworkers for non-use of restraints; nurses' attitude towards elderly patients in terms of rehabilitation

potential; and nurses' preference for working with the elderly

Subjects were asked to indicate their agreement or disagreement to the statements in section 2 using a five point Likert scale. The wording of the items and assurances of anonymity were designed to reduce the effect of a social desirability response set (Polit & Hungler, 1991; Woodward, Chambers & Smith, 1982)). Both positive and negative statements were included to help counterbalance the effect of acquiescence and nay-sayer response sets (Polit & Hungler, 1991; Woodward et al., 1982).

The final questions, in section 3, concerned the number of elderly patients on each ward unit, and the frequency of use of different types of restraints. Nurses were asked to report on how many elderly patients, aged 65 years and over, each type of restraint was being used, at that time, on their unit. Numbers were requested both for daytime and nighttime. Nurses were also asked to report the number of patients on their unit, at that time, who were aged 65 years and over. Thus, the average number of restraints per elderly patient could be calculated.

It was hoped that anonymous self reporting would give a more accurate picture of the prevalence of restraint use than intermittent observations by the investigator. Nurses would have knowledge of restraints used over the 24 hour

period, including restraints used on a short term basis. However, there was no mechanism to check the accuracy of reports. The use of patients' charts to determine restraint use was ruled out as previous studies found that documentation was often missing (Mion et al., 1989; Robbins et al., 1987).

Side rails were included because they met the study definition of physical restraints in restricting freedom of movement. However, side rails are not always considered to be restraints and have been excluded in other studies (Folmer & Wilson, 1989; Lofgren et al., 1989; Powell et al., 1989; Robbins et al., 1987). Reasons for this exclusion were not always given. One reason that was given was that hospital policy dictated the use of side rails for patients over 65 years. This applied in the present study. Since this could create a bias, two average restraint use variables were calculated, one including and one excluding side rails.

The final question in section 3 was open ended and asked whether nurses felt they were able to give elderly patients the care they would like to and, if not, what changes would they like to see to improve quality of care.

Reliability and validity of the instrument

Face and content validity were assessed independently by three masters prepared nurses interested in the nursing

care of the elderly, particularly the issue of physical restraint use. The feedback indicated approval that the questions adequately sampled the content areas related to restraint use.

The instrument was tested for reliability. Cronbach's alpha reliability index was used to estimate the internal consistency of the 42 item Likert scale in section 2.

Following consultation with a statistician, factor analysis was carried out in order to determine the number of factors needed to describe the variables and to address the issue of validity (Frank-Stromborg, 1989; Norman & Streiner, 1986; Nunnally, 1967; Polit & Hungler, 1991). Factor analysis examines convergent and discriminant validity and thus addresses construct validity (Polit & Hungler, 1991; Nunnally, 1967). Nunnally (1967) states that factor analysis also has a role in both predictive and content validity.

Pretest

Five RNs, with similar backgrounds to the RNs in the proposed sample, were asked to participate in the pretest in order to determine whether instructions were clear and items unambiguous. Minor editorial changes were made in response to participants' suggestions. Completion of the questionnaires took approximately 10 minutes.

Data Analysis

Analysis of the data to determine the prevalence of physical restraint use on elderly patients and factors influencing that use, was carried out using the computer program, Statistical Package for the Social Sciences (SPSS) on VAX/VMS. Each questionnaire was assigned an identification number and an institutional number. Answers to the questions were coded. Descriptive and inferential statistics were used following consultation with a statistician. Results were rounded up if 0.5 or over and rounded down if less than 0.5. Results were considered statistically significant if $p < .05$.

Characteristics of the sample

Characteristics of the sample were examined using frequencies, crosstabulations by hospital and unit, and chi-square statistics. Some categories were combined for analytical purposes. The over 40 and over 50 age groups were combined as 40+ years, giving three instead of four categories. Categories for time worked on the present unit and time in the nursing profession were combined into four categories for each variable: less than 1 year; 1 to 5 years; 6 to 10 years; and 11+ years.

Prevalence of restraint use

Nurses' reports of usage of each type of restraint were compared for hospitals and ward units. The number and percentage of ward units in which one or more nurses reported the use of each type of restraint were determined for hospitals and for medical and surgical units.

In order to facilitate further analysis, mean values for the total sample were calculated for each type of restraint used during the day and during the night, and for the reported number of elderly patients. The mean values were then substituted for missing values. For each nurse, the reported day and night values were added together for each type of restraint, giving the total reported number of each type of restraint used in a 24 hour period. This total was then divided by the number of elderly patients reported by that nurse, to give the average for that type of restraint per elderly patient.

In order to determine differences between hospitals when controlling for unit types, Manova analysis of covariance was performed with the average per elderly patient of the most commonly used restraints as the dependent variables, and age, educational level, and attendance at inservices as co-dependent variables.

Responses to the Likert scale

Frequencies of each level of response for each variable in the Likert scale in section 2 of the questionnaire were determined. Crosstabulations and chi-square statistics were calculated for hospitals and unit types. Where the expected frequencies in cells were less than 5, categories for strongly agree and agree were combined, as were strongly disagree and disagree. Since only one unit, in one hospital, was a mixed medical and surgical ward, statistics were calculated for medical and surgical units only, as well as frequencies for all three types.

Items on the Likert scale were assigned scores. Positively and negatively worded statements were reverse scored. Thus agreement with positively worded statements and disagreement with negatively worded statements both resulted in higher scoring.

Following consultation with a statistician, factor analysis was then carried out in order to determine the number of factors needed to describe the variables and, as previously stated, to address the issue of validity.

Factors influencing restraint use

In order to determine which factors influenced the use of physical restraints, factor scores were calculated prior to correlation with each of the two average restraint use

per patient variables. Factor scores were calculated in the following way. Means for the total sample were calculated for each item on the Likert scale. Mean values were substituted for missing values. Total scores for each case were computed for each of the factors derived from the factor analysis. The highest possible score for each item was five and the lowest score was one. The individual scores for each item in the factor were added together to give a total score for that factor. In order to give constant factor values, the total scores for each factor were divided by the number of items in that factor. For example, Factor 1 consists of two items. Thus, the highest total score for this factor would be ten and the lowest two. The individual's total score would be divided by two, the number of items in that factor. Mean factor scores were calculated and compared for hospitals and unit types. In addition, mean factor scores were compared for age, education, and attendance at inservices.

Factor scores for each of the 15 factors were then correlated with the average restraint use per elderly patient which was calculated in the following way. The 24 hour totals for each type of restraint were added together to give the total number of all types of restraints reported in a 24 hour period, including side rails and excluding side rails. One case was excluded from the calculation for side

rails as the number of side rails reported vastly exceeded the number of reported elderly patients. The average restraint use per elderly patient was then calculated by dividing the total number of reported restraints by the reported number of elderly patients. This resulted in two variables, one including and one excluding side rails.

Satisfaction with care of the elderly

The number and percentage of nurses satisfied with the care they were able to give to elderly patients was calculated. Responses to the open ended question about changes nurses would like to see in their unit or hospital were categorized and tabulated.

Limitations of the Study

1. There is no assurance that the intended individual answered the questionnaire (Woodward & Chambers, 1980).
2. Respondents may have discussed their answers with each other.
3. It is not possible to determine whether those who did not respond had different characteristics from those who did (Woodward & Chambers, 1980).
4. The instrument had not been used prior to this study.

5. There was no mechanism to check the accuracy of reported restraint use. Some nurses reported in terms of the whole unit and others only in terms of the patients actually under their care.
6. Data collection during the summer months may have influenced response rates.

CHAPTER IV

RESULTS

In this study, 242 registered nurses completed a 56 item questionnaire to determine the prevalence of physical restraint use of the elderly and factors that contribute to the use of physical restraints in acute care settings.

Results are presented in five sections: characteristics of the sample, prevalence of physical restraint use, development of the instrument, factors influencing restraint use, and satisfaction with care given and suggested changes for improvement.

Characteristics of the Sample

The registered nurses comprising the sample consisted of 68 (28%) medical nurses, 156 (65%) surgical nurses, and 18 (7%) nurses who worked on a mixed medical-surgical unit (Table 3). Fifty percent of the sample were under 30 years, 41% were 30-39 years, while less than 10% were over 40 years (Table 4). There was a statistically significant difference between hospitals in terms of age. Hospital 2 had a higher percentage of older nurses. There was no statistically significant difference between medical and surgical units in terms of age (Table 5).

There was no statistical difference between hospitals or unit types with regard to years in the nursing profession or time worked on the present unit (Table 6). Just over half

TABLE 3

Number and percentage of medical and surgical nurses from each hospital (N = 242)

		Hospital		
		1	2	3
Unit	Total (%)	no. (%)	no. (%)	no. (%)
medical	68 (28)	23 (39)	19 (37)	26 (20)
surgical	156 (65)	36 (61)	33 (63)	87 (66)
med/surg	18 (7)			18 (14)
	242 (100)	59 (24)	52 (22)	131 (54)

TABLE 4

Age distribution of sample in each hospital

			Hospital					
			1		2		3	
Age	Total	(%)	no.	(%)	no.	(%)	no.	(%)
20 - 29 yrs.	120	(50)	35	(59)	20	(39)	65	(50)
30 - 39 yrs.	99	(41)	20	(34)	22	(42)	57	(43)
40 + yrs.	23	(9)	4	(7)	10	(19)	9	(7)
	242	(100)	59	(24)	52	(22)	131	(54)

Note.

Significant difference between hospitals $p < .05$

TABLE 5

Age distribution of the sample in different types of units

		Unit		
Age	Total (%)	medical no. (%)	surgical no. (%)	mixed no. (%)
20 - 29 yrs	120 (50)	35 (51)	79 (50)	6 (33)
30 - 39 yrs	99 (41)	25 (37)	65 (42)	9 (50)
40 + yrs	23 (9)	8 (12)	12 (8)	3 (17)
	242 (100)	68 (28)	156 (65)	18 (7)

Note.

No statistically significant difference between medical and surgical units (mixed unit excluded)

Table 6

Time worked in nursing and on present unit

	Time worked			
	in nursing		on unit	
Years	no.	(%)	no.	(%)
less 1 yr	10	(4)	28	(12)
1-5 yrs	101	(42)	126	(52)
6-10 yrs	65	(27)	47	(19)
11+ yrs	66	(27)	40	(17)
	242	(100)	241	(100)

(54%) of the nurses had been in the nursing profession for six or more years. However the majority of nurses (64%) had worked on their present unit for five or fewer years.

Only 2% of the sample was male. This reflected the percentage in the target population.

In terms of shifts worked and work status, there was no significant difference between hospitals or unit types. Full time nurses comprised 84% of the sample, and 74% of the nurses worked rotating shifts, as opposed to single shifts.

The educational levels of the sample for hospitals and units are presented in Tables 7 and 8 respectively. There was a statistically significant difference between hospitals in terms of education (Table 7). A higher percentage of nurses in hospital 3 had degrees. Only 13 nurses reported taking courses in gerontology, but these courses were part of their basic training and not additional education.

Reported attendance at inservices on care of the elderly was significantly different ($p < .01$) between units (Table 9) but not between hospitals (Table 10). More nurses at hospital 1 and more medical nurses had attended care of the elderly inservices. A large majority of nurses (89%) reported that they had read articles about restraint use.

In summary, the sample of 242 registered nurses represented 63% of the population. Over 70% of nurses from hospitals 1 and 3 were involved in the study, compared to

Table 7

Education level of sample by hospital

			Hospital					
			1		2		3	
Education	Total	(%)	no.	(%)	no.	(%)	no.	(%)
Diploma	215	(89)	55	(93)	51	(98)	109	(83)
Degree	27	(11)	4	(7)	1	(2)	22	(17)
	242	(100)	59	(24)	52	(22)	131	(54)

Note.

Significant difference between hospitals $p < .01$

Table 8

Education level of sample by unit

			Unit type					
	Total		Medical		Surgical		Mixed	
Education	no.	(%)	no.	(%)	no.	(%)	no.	(%)
Diploma	215	(89)	60	(88)	138	(88)	17	(94)
Degree	27	(11)	8	(12)	18	(12)	1	(6)
	242	(100)	68	(28)	156	(65)	18	(7)

Note.

No statistically significant difference between medical and surgical units (mixed unit excluded)

Table 9

Reported attendance at inservices on care of the elderly by unit type (N=241)

		Unit type		
	Total	medical	surgical	mixed
Attendance	no. (%)	no. (%)	no. (%)	no. (%)
Yes	78 (32)	31 (46)	44 (28)	3 (17)
No	163 (68)	36 (54)	112 (72)	15 (83)
	241 (100)	67 (28)	156 (65)	18 (7)

Note.

Significant difference between units $p < .01$

Table 10

Reported attendance at inservices on care of the elderly by hospital (N=241)

	Total	Hospital		
		1	2	3
Attendance	no. (%)	no. (%)	no. (%)	no. (%)
Yes	78 (32)	26 (44)	16 (31)	36 (28)
No	163 (68)	33 (56)	36 (69)	94 (72)
	241 (100)	59 (24)	52 (22)	130 (54)

43% of nurses from hospital 2. A higher percentage of surgical nurses (75%) than medical nurses (52%) took part. In addition, 18 of the 24 nurses (75%) in a mixed medical/surgical unit participated.

The sample was almost evenly divided between those 20-29 years old and those 30-39 years old, with just 10% over 40 years old. Nurses who had been in the profession for 6 years or more were in the majority but most nurses (64%) had not worked more than 5 years on their current unit.

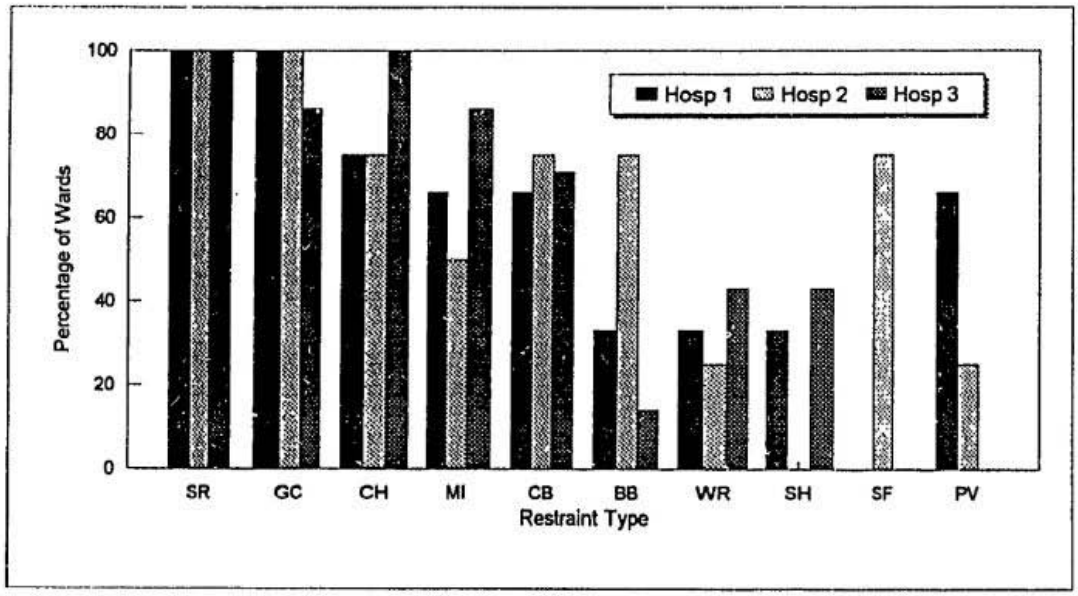
The majority of nurses worked fulltime on a rotating shift schedule and did not have degrees. Two thirds of the nurses reported that they had not attended inservice education sessions on care of the elderly, but the majority had read articles about the use of physical restraints.

Prevalence of Physical Restraint Use

In order to determine the prevalence of physical restraints used on elderly patients, nurses' reports of usage of each type of restraint were compared for hospitals and ward units. The number and percentage of ward units in each hospital in which one or more nurses reported the use of each type of restraint are presented in Figure 2. Side rails were reported to be used in all units. Geriatric chairs and chest restraints were used in most units. Restraints such as Segufix, sheets, and pelvic restraints,

Figure 2

Percentage of ward units in each hospital using each type of restraint



Note. Total number of ward units in hospital 1 = 3; hospital 2 = 4; hospital 3 = 7

SR = side rails
GC = geriatric chairs
CH = chest restraints
MI = mitts
CB = chair belt
BB = bed belt
WR = wrist restraint
SH = sheet restraint
SF = segufix
PV = pelvic restraint

were reported less frequently, and the use varied in each hospital. Segufix restraints were reported only in hospital 2. There were no reports of the use of sheet restraints in hospital 2, nor of pelvic restraints in hospital 3. There were no reports of ankle restraints or Houdini (body) restraints being used in any hospital.

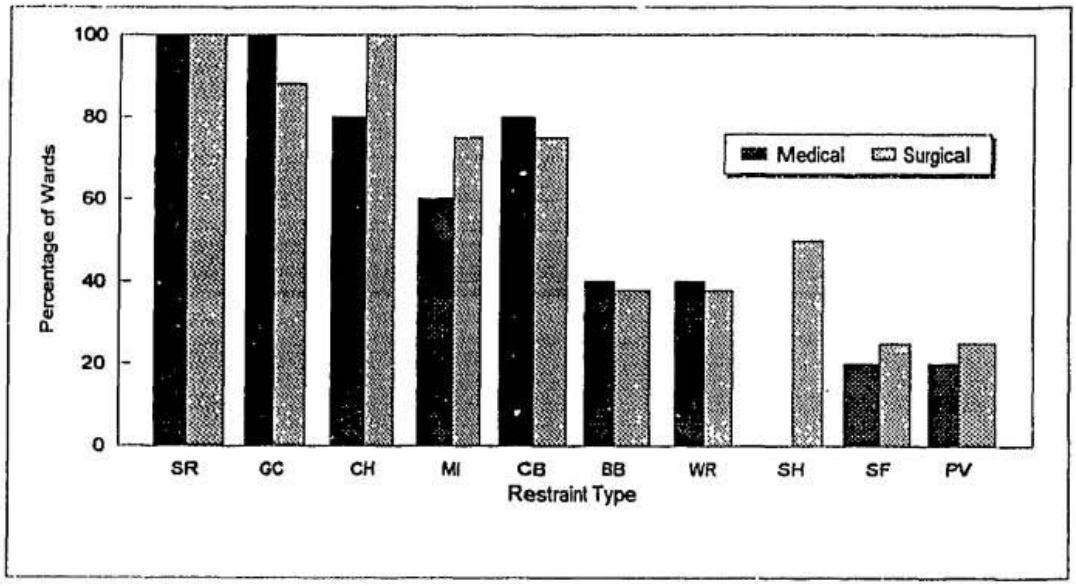
A comparison of reported usage of each type of restraint on medical and surgical units is presented in Figure 3. Mitts and chest restraints were used on more surgical units, while geriatric chairs were more common on medical units.

In some cases only one or two nurses reported the use of a particular restraint on their ward unit. This occurred with the reporting of sheets being used as restraints. While sheet restraints are reported in three surgical ward units in hospitals 1 and 3, the number of nurses actually reporting this was only eight. It is interesting to note that 89 (37%) nurses agreed to a related statement in the Likert scale that it may be necessary to use bed sheets as restraints at times (see Appendix F). Significantly ($p < .01$) more nurses at hospital 3 agreed (see Appendix G), while a significantly ($p < .01$) higher percentage of medical nurses than surgical nurses disagreed (see Appendix H).

The results of the Manova analysis to determine differences between hospitals when controlling for unit

Figure 3

Percentage of medical and surgical ward units using each type of restraint



Note. Medical ward units = 5; surgical ward units = 8
Mixed medical/surgical unit omitted.

SR = side rails
GC = geriatric chairs
CH = chest restraints
MI = mitts
CB = chair belt
BB = bed belt
WR = wrist restraint
SH = sheet restraint
SF = segufix
PV = pelvic restraint

types for the five most commonly used restraints are shown in Table 11. The other restraints were either not used in all hospitals or were used on less than 1% of elderly patients. The Pillais trace was statistically significant for hospitals by unit ($p < .05$), for units ($p < .01$); and hospitals ($p < .01$). The Pillais trace was not statistically significant when age, inservice, and education were each used as codependents. The effects of hospitals differ significantly with medical and surgical ward units for chest and mitt restraint use. The differences between units were concentrated in the mitts and chair belt restraint use. The differences between hospitals is seen with all types of restraints except side rails.

Development of the Instrument

The instrument used in this study had not been used before. The following section describes how the instrument was developed.

Frequencies of responses for each variable in the Likert scale in section 2 of the questionnaire are presented in Appendix F.

Cronbach's alpha reliability index was used to estimate the internal consistency of the 42 item Likert scale. The resulting alpha = .76 and standardized item alpha = .78 are considered acceptable levels of reliability for early

Table 11

Manova test of significance of differences between hospitals and unit type for the five most commonly used types of physical restraints

	F	p	
Hospital by unit			
side rails	.001	.999	
chest restraint	3.7	.027	*
geriatric chair	1.32	.270	
mitt	3.40	.035	*
chair belt	1.82	.164	
Unit			
side rails	1.51	.221	
chest restraint	.59	.443	
geriatric chair	.89	.348	
mitt	8.03	.005	**
chair belt	4.58	.033	*
Hospital			
side rails	1.09	.339	
chest restraint	8.56	.000	**
geriatric chair	7.52	.001	**
mitt	3.08	.048	*
chair belt	3.72	.026	*

Note. * $p < .05$ ** $p < .01$

instrument development (Frank-Stromborg, 1989; Nunnally, 1967).

Following consultation with a statistician, factor analysis was carried out in order to determine the number of factors needed to describe the variables and, as previously stated in chapter 3, to address the issue of validity.

Correlations between the variables were not high, but for each variable the coefficient was at least 0.3 with at least one other variable. Two tests were used to evaluate the appropriateness of the factor analysis model. These were the Bartlett test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The Bartlett test of sphericity was 2196.82 with a significance of $p < .01$ indicating that the population correlation matrix was unlikely to be an identity matrix. The KMO measure of sampling adequacy was 0.67 indicating an acceptable value (Norusis, 1988).

Factor analysis was performed using the principal component extraction method. Fifteen factors were extracted with eigenvalues greater than 1.0 (Table 12). It was decided to follow the "eigenvalue-one" rule (Norman & Streiner, 1986) and retain all 15 factors due to the exploratory nature of the study (Polit & Hungler, 1991). The communality of the variables ranged from 0.53 to 0.78. The cumulative percentage of variance for the 15 factors was 63.3% (see

Table 12

Eigenvalues and percentage of variance explained by factors

Factor	Eigenvalue	% variance	cum %
1	4.83694	11.5	11.5
2	3.22400	7.7	19.2
3	2.18326	5.2	24.4
4	1.96932	4.7	29.1
5	1.93538	4.6	33.7
6	1.68195	4.0	37.7
7	1.49163	3.6	41.2
8	1.35847	3.2	44.5
9	1.30593	3.1	47.6
10	1.22711	2.9	50.5
11	1.12028	2.7	53.2
12	1.10474	2.6	55.8
13	1.08636	2.6	58.4
14	1.02935	2.5	60.8
15	1.01147	2.4	63.3

Table 12). Norman and Streiner (1986) state that retained factors should account for at least 60% of the variance. There were 264 (30%) residuals greater than 0.05 in the reproduced correlation matrix, indicating that the model fits the data well (Norusis, 1988). There were 192 (11.1%) off diagonal elements of the anti-image correlation matrix greater than 0.09.

In order to simplify the factor matrix, equamax rotation was performed, thus simplifying both the factors and the variables. Factor loadings less than 0.3 were omitted. All but one factor loading were 0.4 or greater. The resulting factors and factor loadings are presented in Table 13.

Extracted factors

Each factor was given a descriptive label according to the variables of which it comprised. The first factor, Age Preference, consists of two variables concerning nurses' enjoyment of working with elderly patients, and their preference for working with younger patients.

Factor 2, Custodial Care, consists of five variables. Custodial care involves task completion rather than individualized care, and occurs when safety is considered more important than autonomy. Three variables included in

Table 13

Factor loadings following equamax rotation

Factor	Factor loading
1. Age preference	
I enjoy caring for elderly patients.	+.826
I prefer working with younger patients.	+.763
2. Custodial care	
Restraints should be used when you cannot watch the patient closely	+.665
Restraints are used when we are short staffed	+.655
Incontinence is normal in the elderly.	+.567
May be necessary to use bed sheets as restraints at times	+.548
Restraints are sometimes used because of family pressure	+.308
3. Treatment outcomes	
With a good rehab program many elderly could return to the community	+.733
Patients often become more agitated when restrained	+.676
Therapy for the elderly is a waste of time as most go to nursing homes	+.405
Restraints help to calm agitated elderly patients	+.404

Table 13 (cont.)

Factor loadings following equamax rotation

Factor	Factor loading
4. Support of Staff	
Administration supports nurses if they decide not to restrain patients.	+.724
Other staff are supportive if I decide not to use restraints.	+.684
I will be blamed if I don't restrain a patient & he/she falls or wanders.	+.594
5. Individualized care	
Families should be consulted prior to restraint use.	+.647
Patients have the right to refuse restraint application.	+.623
Ambulatory restrained patients should be walked, every two hours.	+.453
Confusion is often due to unfamiliar surroundings.	+.438
6. Ward environment	
Adequate space to get around safely.	+.744
We usually have adequate staff.	+.588
There's too little room in the bathrooms to assist elderly patients properly.	+.557
Floor lay-out makes observation difficult.	+.452

Table 13 (cont.)

Factor loadings following equamax rotation

Factor	Factor loading
7. Nursing care	
Encouraging self-care and ambulation decreases hospital stay.	+.658
Staff on each shift should reassess the need for restraints.	+.646
Restrained patients need frequent observations to ensure they are safe.	+.451
8. Rehabilitative responsibilities	
All nursing staff should participate in activating the elderly.	+.722
Activation is the task of physios and OTs not nursing staff.	+.628
9. Time consideration	
Physical restraints save nursing time.	+.763
Nurses don't have time to be constantly checking on elderly patients.	+.540
Patients restrained in chairs do not need position change every 2 hours.	+.440
10. Restraint use considerations	
Deaths have been associated with restraint use.	+.725
Walking ability deteriorates with restraint use.	+.521
Side rails on the beds of all elderly patients.	+.497
Confused patients are more likely to fall and hurt themselves if bed rails are up.	+.414

Table 13 (cont.)

Factor loadings following equamax rotation

Factor	Factor loading
11. Beliefs	
Most elderly are too ill or too aged to be rehabilitated.	+.737
I could be sued for improper use of restraints.	+.616
12. Negative attitudes	
There are no good alternatives to restraints.	+.697
Unrealistic to practice activation and rehab. of elderly in acute care.	+.485
Staff on the next shift expect wandering and confused patients to be restrained.	+.402
13. Family reaction	
Families are often upset when restraints are used	+.745
14. Sitters	
We use "sitters" for confused or wandering patients on our unit.	+.823
15. Documentation	
It is unnecessary to document restraint restraint use on each shift.	+.756

this factor relate to the use of restraints to prevent falls and wandering when staff are unable to watch the patient closely, or when there is a staff shortage, or in response to pressure from families. The use of bed sheets to prevent patients getting out of chairs is also included in this factor. This could be considered an unofficial or substitute restraint, possibly used without a doctor's order. The fifth variable in this factor, belief that incontinence is normal in the elderly, can also lead to custodial care. If a nurse believes this she may use diapers and restraints instead of undertaking a bladder training program and encouraging patients to use the bathroom.

The third factor, Treatment Outcomes, consists of two components. The first component concerns the conflicting beliefs that therapy and rehabilitation can return elderly patients to the community, or are a waste of time. The second component in this factor is whether restraints calm agitated elderly patients or actually increase agitation.

The fourth factor concerns the Support of Nursing Staff. This includes nurses' perceptions as to whether or not they have the support of the administration, and their coworkers, if they do not use restraints.

Factor 5, Individualized Care, consists of four variables. This factor includes the issue of individual patients and families having the right to be consulted about

restraint use and to refuse restraints. It also includes the need to assess the ambulatory ability of each patient, and to ensure that those who can walk when restraints are applied, are given regular opportunities to maintain this function. The fourth item in the Individualized Care factor is the recognition of the fact that confusion in hospitalized elderly patients may be due to being in an unfamiliar environment. Only individualized assessment would determine this.

The sixth factor, Ward Environment, includes nurses' perceptions of staffing levels as well as their perception of the physical layout of the unit. This involves the effect of the environment on patient activity, and nurses' ability to observe patients and to assist them in the space available.

The seventh factor, Nursing Care, includes three variables related to nurses' beliefs about aspects of nursing care: whether encouraging self-care and ambulation decreases the length of hospital stays; whether nurses on each shift should reassess the need for restraints; and whether restrained patients need frequent observations to ensure they are safe.

Factor 8, Rehabilitative Responsibility, consists of two items: whether nurses or therapists should be responsible for activation of the elderly.

Factor 9, Time Consideration, concerns nurses' perceptions of the time they have to carry out care functions, whether patients are restrained or not. Included in this factor was the question of whether nurses feel they have time to keep checking on elderly patients, and whether they believe the use of restraints saves nursing time because patients do not need to be checked as frequently. The third variable involves the time needed to change the position of patients restrained in chairs and whether the nurse feels this is necessary every 2 hours.

The tenth factor, Restraint Use Considerations, relates to issues that should be considered when restraints are used. These include possible outcomes such as a deterioration of walking ability, increased risk of falls by confused patients, and even death. It also includes the issue of whether side rails should be used on the beds of all elderly patients.

Factor 11, Nurses' Beliefs, consists of two variables. The first is related to nurses' perceptions of the rehabilitative potential of elderly patients. The second variable concerns beliefs about the nurses' own vulnerability to lawsuits for improper restraint use.

The twelfth factor, Nurses' Attitudes, consists of three items. These are beliefs that there are no good alternatives to restraints; that it is unrealistic to try

and rehabilitate elderly patients on acute care wards; and the negative expectations of the oncoming shift regarding restraint use.

Factors 13 to 15 each consist of a single item. The first relates to Families' Reaction to restraints. The second concerns the Use of Sitters as an alternative to restraints. The last, Documentation, concerns the question of the documentation of restraint use.

Factors Influencing Restraint Use

In order to determine which factors influence restraint use, factor scores were correlated with the two average restraint use per elderly patient variables, including and excluding side rails (see Appendix I).

Four factors were statistically significant (Table 14). These were: (a) the Ward Environment factor, which correlated negatively with both average restraint use variables; (b) the Time Considerations factor and (c) the Support of Staff factor, both of which correlated negatively with average restraint use, excluding side rails; and (d) the Age Preference factor which correlated negatively with the average restraint use variable including side rails. These results indicate that restraint use is linked to: nurses' concerns about the physical layout and staffing levels of their ward unit; nurses' consideration of time in

Table 14

Correlations of factor scores with average restraint use per elderly patient

	Average restraint use/elderly patient[a]	
Factors	excl. SR	incl. SR
1. Age preference	-.0707	-.1349 *
4. Support of staff	-.1322 *	-.0329
6. Ward environment	-.1392 *	-.1407 *
9. Time considerations	-.1457 *	-.0998

Note.

[a] r values

* $p < .05$

relation to nursing care of the elderly; nurses' perceptions of support from administration and co-workers for the non-use of restraints; and nurses' preference in working with the elderly.

Ward Environment

The Ward Environment factor included three items related to the physical environment, and one to staffing levels (see Table 13). These variables were: there is adequate space for elderly patients to get around safely on our unit; there is too little room in the bathrooms to assist elderly patients properly; due to the layout of the floor, it's difficult to observe elderly patients; and we usually have adequate staff.

The majority of nurses felt there was inadequate space in the bathrooms and for safe ambulation in the unit; that there were problems observing patients due to the layout of the floor; and that staffing was inadequate (see Appendix F). This resulted in low factor scores for the majority of nurses. The negative correlation with both average restraint use variables indicates high restraint use. Thus, inadequate space for elderly patients to ambulate safely and for staff to assist patients properly, coupled with difficulty in observing patients due to the layout of the floor and staffing shortages, appear to contribute to the use of

restraints to prevent independent, unsupervised movement.

There was no statistically significant difference in mean factor scores for the Ward Environment factor between hospitals or ward units (Tables 15 and 16), nor between those who attended inservices and those who did not (Table 17).

There was a significant difference ($p < .05$) between hospitals but not units regarding nurses' perceptions of the adequacy of space for the elderly to get around safely (see Appendix G). More nurses at hospitals 1 and 3 disagreed or were undecided that there was adequate space.

While almost 60% of all nurses did not think they had adequate staff (see Appendix F) there was a significant difference ($p < .05$) between hospitals regarding perceptions of staffing levels. At hospital 2, only 17% of nurses agreed that they usually had adequate staff, compared to 38% of nurses at hospital 1, and 32% of nurses at hospital 3 (see Appendix G). Approximately 60% of both medical and surgical nurses felt that staffing was inadequate (see Appendix H).

Time Considerations

By implication, staffing levels are related to the Time Considerations factor which correlated negatively with average restraint use, excluding side rails (see Table 14). This factor consisted of three variables: using physical

Table 15

Differences in mean factor scores between hospitals

	mean scores			
Factors	hosp 1	hosp 2	hosp 3	p
Age preference	3.55	3.79	3.12	.003 **
Support of staff	2.47	2.58	2.60	.430
Ward environment	2.33	2.27	2.30	.911
Time consideration	3.67	3.60	3.90	.012 *

Note.

* $p < .05$ ** $p < .01$

Table 16

Differences in mean factor scores between medical and surgical units

	mean scores		
Factors	medical	surgical	p value
Age preference	3.70	3.37	.012 *
Support of staff	2.58	2.55	.741
Ward environment	2.26	2.28	.855
Time considerations	3.66	3.80	.179

Note.

* $p < .05$

Table 17

Differences in mean factor scores between those who attended inservices on care of the elderly and those who did not

Factors	mean scores		p value	
	yes[a]	no[a]		
Age preference	3.7	3.4	.0014	**
Support of staff	2.6	2.5	.5926	
Ward environment	2.4	2.3	.4449	
Time considerations	3.9	3.7	.0447	*

Note.

[a] inservice attendance

* $p < .05$ ** $p < .01$

restraints saves nursing time as you don't have to keep checking on patients; nurses don't have time to be constantly checking on elderly patients to ensure they are safe; and patients restrained in chairs do not need to have their position changed every 2 hours (see Table 13). All three variables are negatively worded statements, thus disagreement with all three would result in a high factor score. The negative correlation with average restraint use excluding side rails implies that those with high scores would report low restraint use. There was a statistically significant difference in mean factor scores between hospitals (see Table 15) but not units (see Table 16). The Schaffe test indicates that the difference was between hospitals 2 and 3. Nurses who had attended inservices on care of the elderly had a significantly higher mean factor score than those who had not (see Table 17).

The majority of nurses (86%) did not agree that using restraints saves time as you don't have to keep checking on patients (see Appendix F). In addition, no nurses disagreed with a related statement that restrained patients need frequent observations to ensure they are safe. One nurse commented that "restraints require just as much attention as non restrained." Another nurse noted "Restraints are not baby sitters."

In spite of this, over 50% of nurses felt they do not

have time to be constantly checking on elderly patients to ensure they are safe. There was a statistically significant difference ($p < .01$) between hospitals on this statement. A high percentage of nurses (21%) at hospital 1 were undecided, while more nurses at hospital 2 agreed that there was no time, and more nurses at hospital 3 disagreed (see Appendix G).

While several nurses commented that they must make time to check on elderly patients, some nurses who feel they lack the time may believe that their patients are safer when restrained than when they are free to move independently. For example, in response to the statement that using physical restraints saves nursing time, one nurse commented that "We must check patients anyway but it saves time by reducing actual incidents and injuries." Another nurse felt that a restraint "helps protect patient, [but] we still have to check on them quite frequently ....Patient safety is our first concern."

The belief that restraints prevent injury conflicts with concern about the possible consequences of restraint use, including injury and death. It is possible that lack of personal experiences with such outcomes means that nurses believe none will occur. This is seen in the comments relating to the statement that deaths have been associated with restraint use: "not in our hospital - not that I know

of"; "not with the restraints we use at present"; "not on our unit because every patient on restraints are on Q15 min surveillance." The fact that some nurses answered in terms of their own experience in their own institution may explain why only 39% of nurses from hospital 1, 62% of nurses from hospital 2, and 61% of nurses from hospital 3 agreed that deaths have been associated with restraints use (see Appendix G,. The difference between hospitals was statistically significant ($p < .01$). Overall, 47 nurses (20%) disagreed (16 of them strongly) and 50 nurses (25%) were undecided about the association of deaths and restraint use (see Appendix F).

While 96% of nurses disagreed that changing the position every two hours of patients restrained in chairs was unnecessary, this is time consuming and may not be done. This was stressed in nurses' comments to another question concerning the ambulation of restrained patients every 2 hours. Nurses stated they were unable to ambulate restrained patients every two hours because there were not enough staff. Comments included: "probably 'should' but again time and staffing are a major factor" and "probably q4h but due to staff shortage at times this is almost impossible to achieve. Not that staff don't want to, but [they are] unable to find the time."

Many of the comments indicated that while nurses agreed

in theory, in practice insufficient time and staff prevented them from actually walking the patients. There were 21 comments indicating the gap between theory and practice: "Unfortunately you would need an army of nursing staff to do this!" and "not necessarily every 2 hours but 3-4 times a day. This is idealistic and reality is a long cry from what's best or even possible." Others commented that it was "Impossible." "Definitely don't have time for that!" "Agree but it is unrealistic due to lack of staff."

Support of Staff

The Support of Staff factor also correlated negatively with average restraint use excluding side rails (see Table 14). This factor consists of two variables related to administrative support, and one to coworkers' support (see Table 13). This negative correlation implies that fewer restraints are used when nurses believe they have the support of both their coworkers and administration.

There was a high rate of indecision (53%) about whether the administration would support nurses if they decided not to restrain patients (see Appendix F). Likewise, 83 nurses (35%) were undecided about whether their colleagues would support non-restraint decisions. A majority of nurses (78%) agreed that they would be blamed and held responsible by the administration if they did not restrain a patient who

wandered away or fell. Further analysis indicated that 76 (32%) of the 236 nurses who answered both questions felt they would be blamed by administration, and that they also lacked administrative support for non-restraint use. Of the 124 nurses who were undecided about administrative support, 93 felt they would be blamed by administration for any mishap. In addition, 72 nurses felt they would be blamed by administration and that they also lacked coworker support. Only 15 nurses felt they had both administrative and coworker support for the non-use of restraints.

Additional analysis indicated that 31 nurses (13%) who felt they lacked coworkers' support for non-use of restraints, also felt pressured by staff on the next shift expecting confused and wandering patients to be restrained when they came on duty.

These results indicate that nurses feel vulnerable in regard to administrative and coworker support. With over half the nurses undecided whether administration would support them for non-use of restraints, nearly 80% feeling they would be blamed if a mishap occurred, and only a third of the nurses feeling that other staff would support a decision not to restrain a patient, low factor scores were obtained. The negative correlation implies that nurses who feel vulnerable may feel pressured into using restraints, rather then being able to use their own judgement. One nurse

commented: " 'posey them' and 'cover your butt' are prevalent choices."

Age Preference

The Age Preference factor, consisting of one variable concerning nurses' enjoyment of working with elderly patients and one variable concerning nurses' preference for working with younger patients (see Table 13), correlated significantly ($p < .05$) with average restraint use, including side rails (see Table 14). There was a statistically significant difference in mean factor scores between hospitals (see Table 15), and between medical and surgical units (see Table 16). The number of nurses from each hospital who enjoyed caring for the elderly is presented in Appendix G. A higher percentage of medical nurses than surgical nurses stated they enjoyed caring for the elderly (see Appendix H). However, one nurse noted: "...it depends on the patient and their personality. Sometimes I enjoy it, sometimes I don't."

While 22% of nurses were undecided whether they preferred working with younger patients, 57 (24%) agreed with this preference and 21 (9%) strongly agreed (see Appendix F). Hospital 3 was fairly evenly divided between those who preferred working with younger patients and those who disagreed (see Appendix G). Only 16 nurses (27%) in

hospital 1, and 10 nurses (20%) in hospital 2 preferred younger patients (see Appendix G). More surgical nurses (35%) than medical nurses (26%) preferred working with younger patients (see Appendix H).

While there was no significant difference in factor scores when compared for age and education, there was a statistically significant difference in mean factor scores for the Age Preference factor between those who had attended inservices and those who had not (see Table 17).

The negative correlation may indicate a tendency by nurses who do not enjoy caring for the elderly, or who prefer younger patients to provide custodial rather than individualized care. This may include automatically putting side rails up on the beds of all elderly patients. More than half (56%) of the nurses agreed that all elderly patients should have bed side rails up, (44% of medical nurses and 61% of surgical nurses). Hospital policies dictating the use of side rails for those over 65 years may also be an influence, but this was qualified by some of the comments: "our policy is you have to, but sometimes as you know they crawl over the rails"; "however if patient is not confused I believe they are capable of deciding."

Satisfaction with Care and Suggested Changes

In answer to the question whether nurses were satisfied

with the care they were able to give their elderly patients, the majority of nurses (73%) stated that they were not satisfied. Suggestions for changes for improving care are summarised in Table 18. While many nurses felt that additional staff would help to improve care, creative suggestions were also made as to how to deal with the problem. Areas of concern included lack of stimulation, the need for appropriate facilities for rehabilitation, more involvement by occupational therapists and physiotherapists, and the need for cooperation with families.

Summary

The results of this study show different patterns of restraint use in different hospitals and types of ward units in acute care settings in St. John's, Newfoundland. The five most commonly used restraints are side rails, geriatric chairs, chest restraints, mitts, and chair belts. The results indicate that the use of physical restraints on elderly patients in this setting is linked to: nurses' concerns about the ward environment (including both the physical layout and staffing levels); nurses' perception of the time they have to carry out the nursing care of the elderly; nurses' perceptions of support from administration and co-workers for the non-use of restraints; and nurses' preference in working with elderly patients.

Table 18

Nurses' suggestions for changes to improve care of elderly patients (N=159)

Suggested changes	Number
More staff	126
Increased stimulation	23
Increased family involvement	22
Improved facilities	19
Special units	14
Special programs/rehab	12
Improved restraints/alternatives	10
Increased PT/OT involvement	10
Decreased wait for placement	6
Better policies re. care	5
Better equipment	5
More inservice	3
Decreased paperwork	2
More support from nursing supervisors	1
Fewer unnecessary procedures	1
Less pressure on staff re. falls	1
Decreased use of Attends	1
Nurses to decide re. lifting patients	1
All staff to follow rules (including doctors)	1
More nursing homes	1
Group teaching of elderly patients	1
Less pressure from doctors	1

Note. Respondents made more than one suggestion

The majority of nurses were not satisfied with the care they are able to give their elderly patients particularly in relation to quality of life and rehabilitation. More than half the nurses made suggestions for improvements.

CHAPTER V

DISCUSSION

The two purposes of this investigation were to determine, through nurses' self report, the prevalence of physical restraint use on elderly patients in acute care settings in three hospitals in St. John's, Newfoundland, and to determine factors that influence the use of physical restraints of the elderly in these settings.

The conceptual model for the study postulated that the prevalence of physical restraints of elderly patients is influenced by aspects of nurses' characteristics and knowledge, aspects of the physical and organizational environment, and the ward milieu.

Quantitative data were obtained from the investigator devised instrument, which included a 42 item Likert scale questionnaire and the self-report by nurses concerning restraint use. While the reliability of the portion of the instrument set in terms of the Likert scale was quite high (alpha = .8), there were problems with the measurement of restraint use. Qualitative data were obtained through comments that nurses spontaneously wrote beside their answers on the questionnaire, and in response to the open ended question concerning nurses' satisfaction with the care they were able to give their elderly patients. These responses helped to give a more comprehensive picture of nurses' perceptions. The interest of nurses in the topic of

care of the elderly, particularly with regard to restraint use, is demonstrated by the relatively high response rate, and by the fact that so many nurses wrote comments and qualifying remarks.

The results are discussed in relation to the research questions and the conceptual framework of the study.

Prevalence of Physical Restraints

Various methods to determine the prevalence of restraint use have been used in previous studies and each one has its drawbacks. Some patients are constantly restrained while others are intermittently restrained, making periodic observation an unreliable method of determining restraint use. Checking physicians' orders is not reliable either, as frequently restraints are ordered by the physician on an "as needed" basis. Nurses then have the freedom to decide when, or if, restraints should be applied. Therefore, nurses' reports would appear to be the more reliable method but, as stated earlier, documentation was found to be inconsistent in other studies (Lever et al., 1994; Mion et al., 1989; Robbins et al., 1987). In this study, it was hoped to overcome some of these problems by requesting nurses to report the number of patients restrained by different types of restraints by day and by night, at that particular time on their particular ward

unit. However, accuracy of reporting could not be verified, especially as some nurses answered in terms of the whole ward unit while others only reported on the patients actually under their care. Under reporting due to social desirability concerns may also have been a factor (Hardin et al., 1994). Therefore, totals for each ward unit could not be cross checked and comparison with other studies could not be made. Using the average restraint use per elderly patient allowed statistical analysis to be carried out.

Restraints could be found on all hospital ward units although there was some variation in the types of restraints used in the different hospitals and on medical and surgical wards. Nurses reported that all ward units used side rails, and all ward units in two hospitals used geriatric chairs while all units at the third hospital used chest restraints. The five most commonly reported types of restraints were side rails, geriatric chairs, chest restraints, mitts and chair belts. Lever et al. (1994) found that double bed rails were the most common form of restraint in an acute care hospital, followed by special straps and chairs, then lap belts, Posey straps, geriatric chairs and jacket restraints. Magee et al. (1993), who excluded side rails and geriatric chairs in their study, found that chest/vest restraints were the most frequently used restraints on non-acute, extended care hospital patients. These were followed (in descending

order) by wrist, chair belts, pelvic restraints, mittens and ankle restraints. They found few patients restrained by more than one restraint. In the current study there was no mechanism to determine the number of different types of restraints used on individual patients. Robbins et al. (1987) found wrist restraints were the most common type of restraints used, followed by chest and waist restraints on medical and surgical units. Mion, Frengley, et al. (1989) also found wrist restraints most frequently used. In this study wrist restraints were not common.

As stated earlier, in some cases only one or two nurses reported the use of a particular restraint on their ward unit, as in the case of sheets being used as restraints. While sheets restraints are reported for three ward units in two hospitals, the number of nurses actually reporting this was only eight. It is not possible to ascertain whether other nurses were unaware that sheets were being used as restraints or whether under reporting was a factor due to social desirability or a "halo effect" (Hardin et al., 1994) However, 89 nurses (37%) agreed with the statement in the questionnaire that it may be necessary to use bed sheets as restraints at times. This was less than the 50% Janelli et al. (1991) found in their study. Although a large number of nurses (73%) in hospital 1 disagreed with the above statement, sheets were reported to be used as restraints in

that hospital. This was also the case in hospital 3 where 46% of nurses disagreed. No sheet restraints were reported on medical ward units, where 72% of nurses disagreed that sheets restraints may be necessary.

The use of sheets as restraints raises several concerns regarding patient safety. Sheets are unofficial restraints and are, therefore, not covered by guidelines concerning application, release etc. There would not be any documentation of use since the restraints would not have been ordered by a doctor. There is also the worry that unofficial restraint use may increase if official restraint use is decreased.

Analysis confirms that different hospitals have different usage of the various types of restraints except side rails, which are used in all ward units in all three hospitals. The Segufix restraint, used in only one hospital, can be used as a bed belt, or a wrist or ankle restraint, or can be used in combination. The specific use was not obtained from the data. For the five most commonly used types of restraints, the type of ward unit influences the differences between hospitals. Chest restraints and mitts were used on more surgical units than medical units, while chair belts were used on more medical wards. The use of mitts may indicate that surgical nurses were more concerned about interference with equipment such as intravenous

infusions and catheters, while medical nurses were more concerned that patients sitting in chairs would ambulate without supervision.

Factors Influencing Restraint Use

The purpose of attempting to find factors that correlated with restraint use for the study population was so that appropriate changes could be recommended to reduce the prevalence of restraint use on elderly patients. Four factors were identified. These were related to nurses' perceptions of the ward environment, including the physical layout and staffing levels, their concern about the time available to complete nursing care, the support nursing staff receive from administration and co-workers, and nurses' preference in working with the elderly. Even though the correlations were not high, the results suggest that these factors have some influence on restraint use for this sample and are areas that should be taken into consideration when attempting to reduce the use of physical restraints on the elderly.

Ward Environment

The results of the study suggest that the ward environment or working conditions of the ward unit, which includes both the physical layout and staffing levels, have

some influence on the use of all types of restraints, including side rails. The majority of nurses agreed that there was inadequate space for patients to get around safely and that the bathrooms were too small to allow nurses to assist patients properly. Since this raises concern about increased fall risk (Innes, 1985) restraint use is likely to result. In addition 67% of nurses felt that the ward layout made it difficult to observe patients. This increases nurses' stress. McHutchion and Morse (1989) stated that, under these circumstances "restraints have a distinct advantage of enabling the nurse to maintain control by keeping the patient in one place" (p. 18).

Heavy workloads may mean nurses cannot answer patients' calls immediately and nurses may then resort to restraints in order to prevent patients trying to go to the bathrooms unaccompanied (Morse et al., 1987). Less than one third of the nurses in this study felt they had adequate staff. The resulting pressure on them as they try to make clinical decisions with limited time and resources may contribute to the use of restraints (Harry & Kopetsky, 1991). Frustration with excessive workload has been found to contribute to patient abuse including the use of restraints (Pilleman & Brachman-Prehn, 1991).

Time Consideration

The results of the study indicate that restraints tend to be used more frequently when nurses feel that they lack the time to complete their work. This is closely linked to their perception of the adequacy of staffing levels and reflects the dilemma that nurses feel in trying to provide care with what they perceive as insufficient staff.

Several nurses commented that, due to lack of time, things are often done for patients instead of encouraging and assisting patients to do things for themselves. Thus, dependency is fostered and patients may lose the ability to do things for themselves.

Nurses at hospital 2 appeared to feel much more pressured by lack of time than nurses at the other two hospitals. In addition, only 17% of nurses at hospital 2 felt they had adequate staff. This may be due to the fact that several ward units were closed for the summer and staff were assigned to other floors. Further studies would be necessary to determine if this was an on-going problem. In their study, Prescott et al., (1985) found that regular ward staff often felt they were short staffed, even though nurses from other ward units were reassigned to make up the required number of staff. This was because the regular nurses had to shoulder additional responsibilities since the "float" nurses were unfamiliar with the routines and

procedures of the ward.

The comment that "an army of nurses would be needed to walk restrained patients every two hours" indicates the gap between theory and practice. While the nurses believe they should be walking patients and changing the position of patients restrained in chairs, they feel it is impossible and unrealistic due to lack of time. Prestcott et al. (1985) found that repositioning was done late or not at all because of staff shortages or because of the wrong mix of staff. This has the potential for long term problems for patients in the area of bowel and bladder control, as well as deterioration in walking ability due to inactivity (Harper & Lyles, 1988; Miller, 1975; Mobily & Kelly, 1991). Not only is this detrimental to the individual patient but it also is likely to prolong the time spent in hospital and therefore, increase financial costs. It indicates that greater attention by supervisory staff is needed to ensure that required care is given, especially to restrained patients (Schnelle et al., 1992). It may mean providing additional staff at certain times of day, or it may mean a different approach to the provision of care. Dubrovskis and Wells (1989) found that staff developed a much more positive approach to caring for the elderly once a co-ordinated rehabilitative plan of care was developed and proved to meet the goal of discharging elderly patients with fractured hips

within three weeks.

Support of Staff

An important finding from this study was the fact that the majority of nurses felt that they lacked support for non-restraint decisions, both from administration and from co-workers. This applied to all 3 hospitals and to both medical and surgical units. Only 13% of nurses thought they had administrative backing. This is considerably less than the 42% reported by Hardin et al., (1994). It is possible that nurses are getting mixed messages about restraints. While administration is saying that restraint use is, or should be, reduced, nearly 80% of the nursing staff still feel they will be blamed if an unrestrained patient wanders or has a fall, serious or not. This makes them feel vulnerable and they react by applying restraints. One nurse suggested that there should be:

> ... less pressure put on staff re falls. Accepting the fact that some pt [sic] may fall, they may also fall at home. But if it occurs in hospital environment we are held or felt like we are at fault and made to feel irresponsible. This is the main reason why restraints are used consecutively [sic].

Participants in Quinn's study (1993) also felt they were expected by the hospital to achieve the unrealistic goal of preventing all falls. Therefore, they used restraints.

Even though there may be a philosophy against restraint use, the fact that policies are in place specifying how restraints are to be applied gives nurses conflicting messages (Harry & Kopetsky, 1991). Even institutions with "least restraint" policies in Southern Ontario were found to use restraints on 12 to 78% of their patients (Lever et al., 1994). Nurses have to feel completely confident that the hospital administration does not expect restraints to be used, and will support nurses when mishaps occur. This was demonstrated by English (1989) who successfully introduced a restraint free policy. She started by building strong administrative backing and then involved all staff throughout the process. Likewise Ejaz et al. (1994) involved all members of the multidisciplinary care team in planning restraint reduction. Hands-on caregivers were given specific responsibility as case managers for removing restraints from individual residents. Knowing they had support, and indeed were expected not to use restraints and were rewarded for not doing so, ensured the success of the program. Eigsti and Vrooman (1992) selected a ward for a demonstration project in restraint removal because the nurse manager believed in a

restraint free environment and was an effective leader. She therefore was able to support and motivate her staff.

Support from co-workers is also important. Hardin et al. (1994) found that the majority of nurses in their study did not make independent decisions to restrain patients but collaborated with other staff, such as team leaders and physicians. A more positive attitude towards the use of restraints was found especially in those who consulted physicians. These nurses not only felt it was alright to use restraints but felt justified in doing so after consulting with other staff. Conversely, support is needed for decisions not to use restraints. Only 26% of nurses in the present study felt they had their colleagues' support if they did not use restraints. On the other hand, 24% of nurses felt that nurses on the next shift expected restraints to be applied when they came on duty. This adds to a feeling of vulnerability which may lead to restraint use, even though the individual nurse would prefer not to use them. The nurse who commented that many nurses choose to "posey them" and "cover your butt" reflected this dilemma.

In a study in England, Baker (1983) found that a cohesive staff that expected dependency and followed rigid routines resisted all attempts by the ward sister to individualize care. If staff can be convinced that a restraint free environment will not increase their work

load, this kind of cohesion can be used to improve care. Ejaz et al., (1994) found that once staff were motivated and committed to a non-restraint policy, and felt that they had the necessary support, they felt pride in their innovations and there was even a spirit of competition between the staff on different units involved in restraint reduction. English (1989) found staff morale increased when restraints were no longer used as nurses felt relief from the moral dilemma they had faced.

Age Preference

There are indications from the study that nurses who enjoy caring for elderly patients may use a more individualistic approach to care and the use of restraints including side rails. It may be that, in spite of hospital policies, side rails are not put up on the beds of all elderly patients. The age of the nurses appears to have an influence on preference in working with the elderly as nurses in hospital 2, which had a significantly higher percentage of older nurses, showed a significantly greater preference for working with the elderly. In addition, nurses who had attended inservice education sessions on care of the elderly preferred working with the elderly. This probably indicates that these nurses are interested in the elderly and thus reflects a greater motivation in learning more

about caring for them. There was a significant difference in preference for working with the elderly between medical and surgical nurses. This may be related to the pace of work on surgical units and surgical nurses' preference for cure rather than care (Armstrong-Esther et al., 1989; Prescott et al., 1985).

One nurse commented that she did not enjoy working with the elderly all the time: "it depends on the patient and their personality. Sometimes I enjoy it and sometimes I don't". These feelings may be shared by the 23% who were undecided about whether they preferred working with younger patients. Glasspoole and Aman (1990) reported that 88% of their sample were usually happy working with elderly patients. This may indicate that these nurses are more concerned with the individual person and less concerned about age.

Other Significant Findings

Over 70% of nurses stated they were not satisfied with the care they were able to give elderly patients and this was evident from the comments and suggestions written on the questionnaires. Although many nurses did state that more staff were needed, they mainly suggested staff who would do basic care and have time to give more attention to the elderly. Volunteers were also suggested but one nurse

commented that:

> an improvement may be seen if admin. didn't bow down to unions & allowed volunteers to actually do something. Some staff 'grieve' if volunteers assist with meals, toileting, ambulation etc.

The nurses' comments indicated that they felt elderly patients lacked sufficient psychosocial care and they suggested more involvement by families and volunteers, more stimulation through activities, and visits by volunteers for those from out-of-town to help decrease confusion and agitation.

It is ironic that some nurses still feel their patients are safer when restrained and yet the inactivity enforced by restraints increases the risk of falls by decreasing muscle strength and increasing balance problems. The fact that just under half of the nurses in this study were either undecided or did not think that walking ability deteriorates with restraint use is very worrying. Possibly if the wording of the statement had been more specific, such as prolonged use, more nurses would have agreed.

However, of even more concern is the fact that 44% of nurses were not convinced that deaths have been associated with restraint use. This has been well documented in the literature (Blakeslee et al., 1991; Dube & Mitchell, 1988; Katz et al., 1981; Miles & Irvine, 1992). It could be argued

that nurses answered in terms of their own experience and their own facilities, but this lack of knowledge is also reported in other studies. Janelli et al. (1991) found 56% of their sample of various levels of nursing home staff did not think deaths were linked to the use of vest restraints. Stillwell (1991) found only 12% of her sample agreed that death was a risk factor in restraint use. In addition, the assumption that frequent surveillance safeguards the patient from harm is a dangerous one since death and injury can easily occur between routine checks (Miles & Irvine, 1992). One nurse suggested that high risk patients should be together in one room with a staff person in constant attendance instead of nurses "racing to sign a q15min. surveillance sheet". Since nurses reported that they did not have time for the necessary ambulation of restrained patients, one may also wonder if there was time for the required surveillance to be carried out when nurses are in the middle of other tasks. Several nurses stated that they must make time to check on elderly patients. However, if they believe their patients will not come to any harm while restrained, they may feel less pressure to carry out every routine check. This has the potential for serious consequences.

In this study, nurses who had attended inservice education sessions on care of the elderly had significantly

higher mean factor scores for both the Age Preference and the Time Consideration factors. As stated earlier, it could be that nurses who are interested in the elderly attended such sessions, or it could be that they became more concerned about the elderly as a result of the sessions. Yarmesch and Sheafor (1984) found indications that nurses who had taken continuing education had more therapeutic responses to restraint decision vignettes. Strumpf et al. (1992), Ejaz et al. (1994), and Werner et al. (1994), among others, found that educational programs played a very important role in reducing restraints. However, administrative commitment and support are also essential.

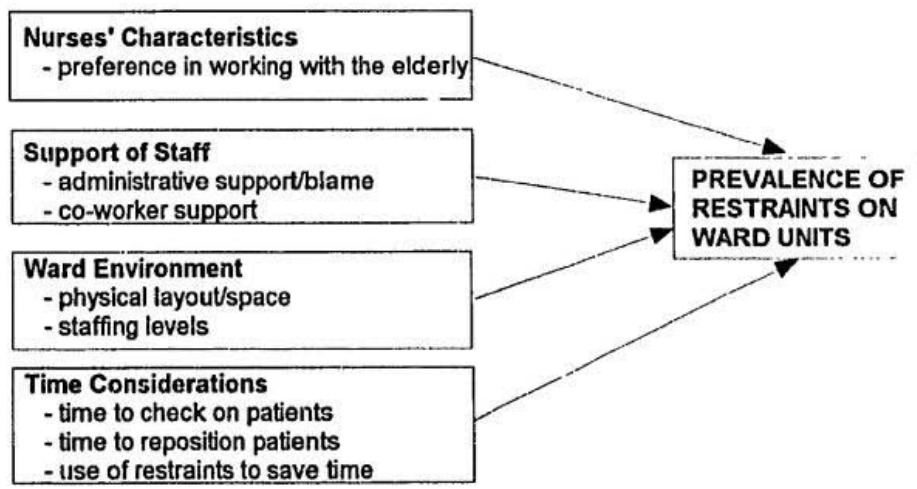
Conceptual Framework

The conceptual model for this exploratory study (see Figure 1, p. 70) proposed factors that influence the use of physical restraints on elderly patients. Some of the variables within the proposed factors fell within different factors when factor analysis was performed. The revised model (Figure 4) illustrates the factors that appear to have some influence on restraint use.

The only nurses' characteristic that appeared to influence restraint use was nurses' preference for working with the elderly. However, as previously discussed, age appeared to have some influence as significantly more nurses

Figure 4

Revised conceptual model of factors influencing the use of physical restraints on elderly patients on acute care wards



at the hospital with the higher percentage of older nurses preferred working with the elderly. While no nurses had taken any specialty courses in care of the elderly, and the level of education (degree or diploma) did not influence restraint use, those who had attended inservice education on care of the elderly had significantly higher scores for Age Preference and Time Consideration factors.

Nurses' knowledge did not influence restraint use in this study. However, there were some disturbing indications of a lack of knowledge about the harmful effects of restraints which have already been discussed.

In the original model, the organizational environment included administrative support and staffing levels, while the ward milieu included co-worker support. In the revised model (see Figure 4), Support of Staff incorporates administrative support and co-worker support, while staffing levels are included in the Ward Environment factor together with the physical environment. In the revised model, a Time Consideration factor emerged which correlated significantly with average restraint use. As discussed earlier, lack of time available to meet the nursing care needs of the elderly may be the result of inadequate staffing, but it could also be due to organizational factors.

The revised model illustrates that the prevalence of physical restraints on elderly patients is influenced by

nurses' perceptions of administrative and co-worker support, by the ward environment including the physical layout and staffing levels, by consideration of time available to carry out nursing care, as well as by nurses' preference in working with elderly patients. The model helps to explain why restraints are used on elderly patients and the factors that influence nurses' "strategies for action" (Wright, 1988).

Summary

While there were problems with the determination of the prevalence of restraint use on elderly patients in acute care hospitals, the results of this study indicate that, for the nurses in hospitals in St. John's, Newfoundland, restraint use is influenced by four factors. These were the ward environment, including both the physical environment and staffing levels, time considerations, nurses' perceptions of support from administration and co-workers, and their preference for working with the elderly.

The question of possible under-reporting of restraint use raises the question of whether, if official restraint use were decreased, unofficial restraints, such as sheets, would be used more. It is a matter of conjecture as to whether nurses who prefer working with the elderly attend more inservice trainings, or whether their attendance has

made them more understanding of the elderly. It was obvious from this study that nurses felt vulnerable if they decided not use restraints and harm came to a patient. Thus, nurses felt pressured to use restraints when they were unable to observe patients closely due to the physical environment, or to perceived shortage of staff, or lack of time to carry out their tasks. Of considerable concern is the fact that, due to time pressure, activities such as ambulation, position changing, and frequent observation of restrained patients may not be carried out. Another concern evident from the study is the fact that nurses felt their patients were safer when restrained, showing many nurses lacked knowledge about the danger of death resulting from restraint use.

CHAPTER VI

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

Summary

This exploratory study was an attempt to determine the prevalence of physical restraint use on elderly patients in acute care settings in St. John's, Newfoundland, and to determine factors that influence the use of physical restraints in that setting. The sample consisted of 242 registered nurses working on medical and surgical ward units. Each nurse anonymously completed a questionnaire between June and September 1993. The majority of the sample were diploma nurses under 40 years of age, who had been in the profession for 6 years or more, and had not worked on their present unit for more than 5 years. The majority of nurses worked full time on rotating shifts. Only one third of the nurses had attended inservices on care of the elderly but the majority had read articles about restraint use.

Restraint use was measured by nurses' self-report of the number of elderly patients restrained by different types of physical restraints on their ward unit at that time. The most common types of restraints used were side rails, geriatric chairs, chest restraints, mitts, and chair belts. Analysis showed that the effects of hospitals differed significantly with medical and surgical ward units for chest and mitt restraint use. The difference between medical and

surgical units was concentrated in the mitts and chair belt use. The difference between hospitals was seen with all types of restraints except side rails.

In order to determine the prevalence of restraints, the total reported number of each type of restraint used in 24 hours was calculated. The average of all types of restraints per elderly patient was then calculated in two ways - including and excluding side rails.

The instrument to determine factors influencing restraint use was devised by the investigator and was composed of a 42 item Likert scale. Factor analysis was performed to determine the number of factors needed to describe the variables. Four factors correlated significantly with the average restraint use variables. The Age Preference factor correlated negatively with the average restraint use variable including side rails. Both the Support of Staff and the Time Consideration factors correlated negatively with the average restraint use variable excluding side rails. The Ward Environment factor correlated negatively with both restraint use variables.

The reliability of the Likert scale was quite high (alpha = .8) but there were problems with verifying the accuracy of the measurement of restraint use which was by self-report and may have been influenced by social desirability. In addition, the correlations between average

restraint use and significant factors were low. However, the results indicate that these factors do have some influence on restraint use and need to be explored further.

Two areas of considerable concern were revealed by the study. One was nurses' perception of the lack of support from administration and their fear of being blamed if they do not use restraints and a patient falls or wanders away. The other was the lack of knowledge that deaths have been associated with restraint use.

Due to problems in measuring restraint use accurately and the low correlations, further research and instrument refinement are recommended.

Implications and Recommendations

Nursing practice and education

It was apparent that a varying number of restraints are used on all ward units in all hospitals and that the majority of nurses in this study did not feel they were able to give elderly patients the care they would like. In addition, many nurses did not feel comfortable using restraints. However, the stressful conditions under which they work made the nurses feel that they have little choice. Nurses, as members of a caring profession, must take an active role in reducing restraint use and improving the quality of life of elderly patients in acute care settings.

Two areas need to be addressed. The first is the fact that nurses appear to be getting mixed messages from administration about restraints and feel vulnerable if they decide not to restrain a patient. The second is the lack of knowledge about the hazards and dangers of restraints to patients. Both of these areas need to be addressed simultaneously.

The following recommendations are made:

1. Ongoing inservice education sessions about care of the elderly, rehabilitation, hazards of restraint use, care of restrained patients, alternatives to restraints, and decision making. Sessions should be held to accommodate all shifts.
2. Appointment of a committed nurse consultant to give practical guidance and assistance in restraint reduction to nursing staff on each ward unit.
3. Active and visible involvement of administrators in restraint reduction by participating in discussions with nurses regarding: a coordinated, multi-disciplinary approach to the development of rehabilitative care plans for the elderly; the readjustment of work loads to allow time for feeding and ambulation; alternatives to restraints such as Ambualarms and the assignment of patients to observation rooms with a staff member in constant

attendance; special units for elderly patients, once medically stable, where they can receive physiotherapy and occupational therapy, as well as stimulation and socialization to enhance their recovery, away from the confusing acute care areas.

Nursing theory and research

The conceptual model for the study postulated that the prevalence of physical restraints of elderly patients is influenced by aspects of nurses' characteristics and knowledge, aspects of the physical and organizational environment, and the ward milieu. This proved to be a good guide, although the variables within the factors combined with other variables to form different factors following factor analysis. Variables included in the nurses' knowledge factor were not shown to influence restraint use. Although nurses' education was not shown to influence restraint use, nurses' attendance at inservice education influenced the mean factor scores for the Age Preference and the Time Consideration factors.

There is some overlap between the factors. For instance, the perception of staffing levels and the variables in the Time Consideration factor had a common theme indicating an inability to carry out assigned work. Also, all 15 factors from the factor analysis only accounted

for 63% of variance and, therefore, the four significant factors from this study cannot be deemed to be the sole factors influencing restraint use. Further research would be needed to determine which factors influence restraint use in other populations. In addition, a comparison between acute care and long term care settings would be useful in order to determine similarities and differences in the two settings.

Two recommendations for further research are suggested. One is to refine an instrument to accurately measure the prevalence of restraint use. The second recommendation is to address the significant factors from this study by designing a study to evaluate the recommendations made for nursing practice and education. A study could examine the impact of a coordinated effort to review policies, to educate and involve all levels of administration and staff (physicians, nurses, therapists, dietary, housekeeping, and maintenance staff) as well as patients and families, to provide a better environment for elderly patients by re-examining placements, care plans, and staff work load. An important component would be the visible and ongoing support by administration for reducing restraints and supporting the efforts of nurses to do so.

Conclusion

This study illustrates the difficulty in determining the prevalence of physical restraint use. Although there were problems with the instrument used, the results indicate areas in which action can be taken to reduce the incidence of physical restraints. By working with administration, nurses can help to change the factors that have been found to influence the prevalence of restraint use.

When the emphasis is on tasks to be completed and problems to be solved, the dignity and emotional needs of the human being who is the patient may be neglected. Nurses have the power to change things and the duty to do so as members of a caring profession.

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APPENDIX A

School of Nursing
Memorial University
St. John's, NF
A1B 3V6

June 1993

To: Nurse Managers and Supervisors

I am a nurse in the Masters of Nursing program at Memorial University and I am conducting a study into the care of the elderly in acute care settings. As the elderly population increases, more elderly people will be in need of health care and hospital services. The purpose of my study is to identify factors that influence the care of the elderly, particularly with regard to the use of physical restraints.

In order to do this, I will be asking Registered Nurses on medical and surgical units to voluntarily fill out a questionnaire. I have enclosed an information sheet about the study, and I would be grateful if you would circulate it to the medical and surgical units in your area, in order to notify them of the upcoming study.

I will be contacting you shortly to arrange a time, convenient to you, to discuss the distribution of the questionnaire to staff in your area.

Thank you for your assistance.

Sincerely

Yvonne M. Jacobs RN BScN

APPENDIX B

School of Nursing
Memorial University
St. John's, NF
A1B 3V6

June 1993

To: All Registered Nurses

I need your assistance! I am a nurse in the Masters of Nursing program at Memorial University and I am conducting a study into the care of the elderly in acute care settings. As the elderly population increases, more elderly people will be in need of health care and hospital services. The purpose of my study is to identify factors that influence the care of the elderly, particularly with regard to the use of physical restraints.

Within the next week you will receive a questionnaire, and I would be most grateful if you would complete it and return it to me. It should not take more than 10 minutes of your time and will be completely anonymous, as your name will not appear on the questionnaire or the return envelope.

Although you may not benefit directly by participating in the study, your opinions and experience will help to identify problems, which may result in recommendations for changes.

Thank you

Sincerely

Yvonne M. Jacobs RN BScN

APPENDIX C

School of Nursing
Memorial University
St. John's, NF
A1B 3V6

June 1993

Dear

As a nurse, currently in the Masters of Nursing program at Memorial University, I am aware of the pressures nurses are under on a day-to-day basis. In order to obtain an accurate picture of the problems facing nurses on medical and surgical units, I need your input. I am conducting a study about the care of the elderly in hospitals, particularly in regard to the use of physical restraints. There are many issues related to restraint use and I am trying to identify factors that influence the decision to use them.

Would you please fill out the enclosed questionnaire? It should not take more than 10 minutes of your time. Participation is voluntary and anonymity is assured so please do not put your name on the questionnaire. The information you give will be combined with that from others, so it will not be possible to identify individuals. I would appreciate your answers to all questions, but if you feel unable to answer a particular question, please feel free to omit it, or to write a comment.

When you have completed the questionnaire please place it in the enclosed return envelope and put it in the labelled drop off point on your unit. It would be appreciated if you would return the questionnaire by June 30.

Although you may not benefit directly from participating in the study, your opinions and experience will help to identify problems, which may result in recommendations for changes. Results of the study will be available from the nursing office, or from me at the above address.

Thank you for your cooperation.

Sincerely

Yvonne M. Jacobs BScN

APPENDIX D

Memorial University of Newfoundland School of Nursing

Questionnaire re: Care of the elderly in acute care settings

SECTION 1: Demographic Data

INSTRUCTIONS: Please circle the number next to your answer:

1. Unit on which you currently work:
   - general medical . . 1
   - general surgical . 2
   - medical specialty . 3

   Please specify:

   - surgical specialty 4

   Please specify:

2. How long have you worked on your present unit?
   - less than 1 year 1
   - 1 - 5 years 2
   - 6 - 10 years 3
   - 10 + years 4

3. How long have you been in the nursing profession?
   - Less than 1 year 1
   - 1 - 5 years 2
   - 6 - 10 years 3
   - 11 - 20 years 4
   - 21 + years 5

4. Please indicate your age:
   - 20 - 29 1
   - 30 - 39 2
   - 40 - 49 3
   - 50 + ... 4

5. Please indicate your sex:
   - female 1
   - male 2

6. Are you currently working:
   - Full-time 1
   - Part-time 2
   - Casual 3

7. Which shift are you working at present?

Rotating shifts	1
Days	2
Nights	3
Evenings	4

8. Please indicate your education level

RN	1
BN	2

9. Have you taken any courses in nursing care of the elderly?

Yes	1
No	2

If yes, please specify:

10. Have you attended any inservices on care of the elderly?

Yes	1
No	2

11. Have you read any articles about restraint use?

Yes	1
No	2

SECTION 2: This section consists of statements about the nursing care of elderly patients (65 years and over).

INSTRUCTIONS: Please circle ONE of the numbers beside each statement to indicate your agreement or disagreement.

1 = SA = Strongly Agree
2 = A = Agree
3 = U = Undecided
4 = D = Disagree
5 = SD = Strongly Disagree

	SA	A	U	D	SD
12. Encouraging elderly patients in self-care and ambulation helps to shorten their hospital stay.	1	2	3	4	5

		SA	A	U	D	SD
13.	There is adequate space for elderly patients to get around safely on our unit.	1	2	3	4	5
14.	Side rails should be put up on the beds of all elderly patients.	1	2	3	4	5
15.	Using physical restraints saves nursing time as you don't have to keep checking on patients.	1	2	3	4	5
16.	Confusion in elderly patients is often the result of being in unfamiliar surroundings.	1	2	3	4	5
17.	Families should be consulted prior to restraint use.	1	2	3	4	5
18.	Incontinence is normal in the elderly.	1	2	3	4	5
19.	I prefer working with younger patients.	1	2	3	4	5
20.	Most elderly patients are either too ill or too aged to be rehabilitated to function at a higher level.	1	2	3	4	5
21.	Staff on the next shift expect wandering and confused patients to be restrained when they come on duty.	1	2	3	4	5
22.	We usually have adequate staff.	1	2	3	4	5
23.	The walking ability of elderly patients deteriorates when restraints are used.	1	2	3	4	5
24.	Due to the lay-out of the floor, it's difficult to observe elderly patients.	1	2	3	4	5
25.	Staff on each shift should reassess the need for restraints.	1	2	3	4	5

		SA	A	U	D	SD
26.	Activation of elderly patients is an important part of nursing care - all nursing staff should participate.	1	2	3	4	5
27.	Nurses don't have time to be constantly checking on elderly patients to ensure they are safe.	1	2	3	4	5
28.	Patients have the right to refuse restraint application.	1	2	3	4	5
29.	Ambulatory patients who are restrained should be walked, every two hours.	1	2	3	4	5
30.	We use "sitters" for confused or wandering patients on our unit.	1	2	3	4	5
31.	Restraints help to calm agitated elderly patients.	1	2	3	4	5
32.	If I decide not to restrain a patient and he/she falls or wanders away, I feel that I will be blamed and held responsible by the administration.	1	2	3	4	5
33.	Deaths have been associated with restraint use.	1	2	3	4	5
34.	There are no good alternatives to restraints.	1	2	3	4	5
35.	Patients restrained in chairs do not need to have their position changed every 2 hours.	1	2	3	4	5
36.	It is unrealistic to practice activation and rehabilitation of elderly patients on acute care wards.	1	2	3	4	5
37.	Restraints are used when we are short staffed.	1	2	3	4	5
38.	The administration supports nurses if they decide not to restrain patients.	1	2	3	4	5

		SA	A	U	D	SD
39.	Therapy for the elderly is a waste of time, as most of our elderly patients are discharged to nursing homes.	1	2	3	4	5
40.	Restrained patients need frequent observations to ensure they are safe.	1	2	3	4	5
41.	Families are often upset when restraints are used.	1	2	3	4	5
42.	I could be sued for improper use of restraints.	1	2	3	4	5
43.	With a good rehabilitation program many elderly patients could return to their own homes or to live with family.	1	2	3	4	5
44.	Confused patients are more likely to fall and hurt themselves if bed rails are up.	1	2	3	4	5
45.	There's too little room in the bathrooms to assist elderly patients properly.	1	2	3	4	5
46.	It may be necessary to use bed sheets as restraints at times.	1	2	3	4	5
47.	Other staff are supportive if I decide not to use restraints.	1	2	3	4	5
48.	Restraints are sometimes used because of pressure from the family.	1	2	3	4	5
49.	I enjoy caring for elderly patients.	1	2	3	4	5
50.	Patients often become more agitated when restraints are used.	1	2	3	4	5
51.	Restraints should be used when you cannot watch the patient closely.	1	2	3	4	5

		SA	A	U	D	SD
52.	Activation is the task of the physiotherapist and occupational therapist and should not be an additional load on nursing staff.	1	2	3	4	5
53.	It is unnecessary to document restraint use on each shift.	1	2	3	4	5

SECTION 3: This section consists of questions about elderly patients (65 years and over) on your unit.

54. On how many elderly patients are each of the following being used, at the present time, on your unit?

	DAYTIME	NIGHTTIME
	Number of patients 65 years & over	
chest/vest/jacket restraint	.....	.....
mitt restraint	.....	.....
geriatric chair with tray	.....	.....
wrist restraint	.....	.....
ankle restraint	.....	.....
side rails	.....	.....
pelvic restraint	.....	....
bed sheet restraint	.....	.....
belt - patient in chair	.....	.....
belt - patient in bed	.....	.....
Segufix body restraint	.....	.....
Houdini security suit	.....	.....

55. How many patients on your unit are 65 years and over at the present time?

Number of elderly patients.....

56. Do you feel you are able to give your elderly patients the care you would like to?

Yes.....1
No.....2

If not, what changes would you like to see in your unit or hospital?

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE

APPENDIX E

School of Nursing
Memorial University
St. John's, NF
A1B 3V6

June 1993

Dear

Two weeks ago I sent you a questionnaire about care of the elderly in acute care settings. If you have not yet completed it, I would be most grateful if you would do so and return it to me as soon as possible. Your input is really needed. If you have mislaid the questionnaire copies are available from your nurse manager.

If you have already completed and returned the questionnaire, thank you very much for your assistance. Your cooperation is greatly appreciated.

Sincerely

Yvonne M. Jacobs RN BScN

APPENDIX F

Summary of responses to questionnaire on care of the elderly (frequencies and percentages)

Factor	Responses SA	A	U	D	SD
1 Age Preference					
+ Enjoy caring for elderly	37 (16)	152 (63)	32 (13)	12 (5)	6 (3)
- I prefer working with younger patients	21 (9)	57 (24)	54 (22)	94 (39)	15 (6)
2 Custodial Care					
- Restraints should be used when you cannot watch patient closely	11 (5)	94 (40)	33 (14)	70 (29)	30 (13)
- Restraints used when we are are short staffed	9 (4)	53 (22)	15 (6)	110 (46)	54 (22)
- Incontinence is normal in the elderly	4 (2)	15 (6)	12 (5)	149 (62)	62 (26)
- It may be necessary to use sheets as restraints at times	11 (5)	78 (32)	20 (8)	76 (32)	56 (23)
- Restraints used because of family pressure	4 (2)	60 (25)	35 (15)	120 (50)	21 (9)
3 Treatment Outcomes					
+ With a good rehab. program patients could return home	69 (29)	141 (59)	23 (10)	5 (2)	0 (0)
+ Patients become more agitated when restraints are used.	96 (40)	130 (54)	7 (3)	5 (2)	1 (1)
- Therapy for the elderly is a waste of time	1 (1)	1 (1)	4 (2)	135 (56)	100 (42)
- Restraints calm agitated elderly patients	0 (0)	2 (1)	5 (2)	122 (51)	112 (47)

Summary of responses to questionnaire on care of the elderly (cont.)

Factor	Responses SA	A	U	D	SD
4 Support of Staff					
+ Administration supports nurses' decisions not to restrain	4 (2)	27 (11)	124 (53)	58 (25)	23 (10)
+ Other staff are supportive if I decide not to restrain	14 (6)	47 (20)	23 (10)	115 (48)	41 (17)
- I will be blamed if I don't restrain a patient who falls	75 (31)	112 (47)	17 (7)	33 (14)	4 (2)
5 Individualized Care					
+ Families should be consulted prior to restraint use	67 (28)	93 (39)	28 (12)	44 (18)	8 (3)
+ Patients have the right to refuse restraint application	41 (17)	89 (37)	62 (26)	44 (18)	4 (2)
+ Ambulatory restrained patients should be walked q2 hours	35 (15)	128 (54)	39 (16)	32 (13)	5 (2)
+ Confusion in elderly is often due to unfamiliar surroundings	71 (30)	136 (57)	13 (5)	20 (8)	0 (0)
6 Ward Environment					
+ There is adequate space for patients to get around safely	9 (4)	64 (26)	28 (12)	114 (47)	27 (11)
+ We usually have adequate staff	1 (1)	72 (30)	25 (10)	81 (34)	61 (25)
- Too little room in the bathrooms to assist elderly patients	123 (51)	99 (41)	3 (1)	12 (5)	4 (2)
- Floor lay-out makes observation difficult	36 (15)	124 (52)	20 (8)	54 (23)	6 (3)

Summary of responses to questionnaire on care of the elderly (cont.)

Factor	Responses SA	A	U	D	SD
7 Nursing Care					
+ Encouraging self-care and ambulation decreases hosp. stay	162 (67)	73 (30)	4 (2)	2 (1)	1 (1)
+ Staff on each shift should reassess need for restraints	104 (43)	132 (55)	3 (1)	3 (1)	0 (0)
+ Restrained patients need frequent observations	155 (64)	85 (35)	1 (1)	0 (0)	0 (0)
8 Rehabilitative Responsibilities					
+ All nursing staff should assist in activating the elderly	89 (37)	140 (58)	8 (3)	3 (1)	2 (1)
- Activation is the task of physiotherapists and OTs	10 (4)	60 (25)	29 (12)	121 (50)	20 (8)
9 Time considerations					
- Restraints save time as you don't have to keep checking	2 (1)	25 (11)	6 (3)	81 (34)	123 (52)
- Nurses don't have time to keep checking on elderly patients	22 (9)	118 (49)	22 (9)	57 (24)	22 (9)
- Patients restrained in chairs do not need position changed	2 (1)	7 (3)	1 (1)	130 (54)	101 (42)
10 Restraint use considerations					
+ Deaths have been associated with restraint use	30 (13)	102 (43)	58 (25)	31 (13)	16 (7)
+ Walking ability deteriorates with restraint use	31 (13)	91 (39)	57 (24)	51 (22)	6 (3)
- Side rails on the beds of all elderly patients	71 (29)	64 (26)	22 (9)	76 (31)	9 (4)
+ Confused patients more likely to fall if bed rails are up	13 (5)	53 (22)	50 (21)	91 (38)	34 (14)

Summary of responses to questionnaire on care of the elderly (cont.)

Factor	Responses SA	A	U	D	SD
11 Beliefs					
- Most elderly are too ill or too aged to be rehabilitated	4 (2)	10 (4)	12 (5)	134 (56)	80 (33)
+ I could be sued for improper use of restraints	70 (29)	139 (58)	22 (9)	8 (3)	1 (1)
12 Negative attitudes					
- There are no good alternatives to restraints	3 (1)	27 (11)	66 (28)	112 (47)	30 (13)
- It is unrealistic to practice activation and rehabilitation of the elderly in acute care	14 (6)	47 (20)	23 (10)	115 (48)	41 (17)
- Next shift expect wandering patients to be restrained	4 (2)	54 (22)	19 (8)	111 (46)	53 (22)
13 Family reaction					
+ Families are often upset when restraints are used	42 (18)	134 (56)	23 (10)	39 (16)	1 (1)
14 Sitters					
+ We use "sitters" for confused or wandering patients	17 (7)	100 (42)	25 (11)	70 (29)	27 (11)
15 Documentation					
- It is unnecessary to document restraint use on each shift	8 (3)	13 (5)	6 (3)	111 (46)	104 (43)

Note. + - refers to direction of scoring

APPENDIX G

Responses by nurses in each hospital to specific statements

	Total	Hospital 1	Hospital 2	Hospital 3
Response	no. (%)	no. (%)	no. (%)	no. (%)
sheet restraints may be necessary at times				
agree	89 (37)	11 (19)	18 (35)	60 (46)
undecided	20 (8)	5 (9)	5 (10)	10 (8)
disagree	132 (55)	43 (73)	29 (56)	60 (46)
adequate space to get around safely				
agree	73 (30)	13 (22)	22 (42)	38 (29)
undecided	28 (12)	4 (7)	4 (8)	20 (15)
disagree	141 (58)	42 (71)	26 (50)	73 (56)
usually have adequate staff				
agree	73 (30)	22 (38)	9 (17)	42 (32)
undecided	25 (10)	9 (16)	5 (10)	11 (9)
disagree	142 (59)	27 (47)	38 (73)	77 (59)
nurses do not have time to check				
agree	140 (58)	32 (55)	34 (65)	74 (56)
undecided	22 (9)	12 (21)	4 (8)	6 (5)
disagree	79 (33)	14 (24)	14 (27)	51 (39)

Responses by nurses in each hospital to specific statements (cont.)

	Total	Hospital 1	Hospital 2	Hospital 3
Response	no. (%)	no. (%)	no. (%)	no. (%)
deaths associated with restraint use				
agree	132 (56)	22 (39)	32 (62)	78 (61)
undecided	58 (25)	15 (26)	11 (21)	32 (25)
disagree	47 (20)	20 (35)	9 (17)	18 (14)
enjoy caring for elderly patients				
agree	189 (79)	50 (85)	45 (88)	94 (73)
undecided	32 (13)	5 (9)	5 (10)	22 (17)
disagree	18 (8)	4 (7)	1 (2)	13 (10)
prefer working with younger patients				
agree	78 (32)	16 (27)	10 (20)	52 (40)
undecided	54 (22)	14 (24)	10 (20)	30 (23)
disagree	109 (45)	29 (49)	31 (61)	49 (37)

APPENDIX H

Medical and surgical nurses' responses to specific statements

		Ward unit	
	Total	medical	surgical
Response	no. (%)	no. (%)	no. (%)
	sheet restraints may be necessary at times		
agree	89 (37)	15 (22)	71 (46)
undecided	20 (8)	4 (6)	16 (10)
disagree	49 (72)	49 (72)	69 (44)
	usually have adequate staff		
agree	73 (30)	19 (28)	45 (29)
undecided	25 (10)	7 (10)	17 (11)
disagree	142 (59)	41 (61)	93 (60)
	enjoy caring for elderly patients		
agree	189 (79)	58 (85)	115 (75)
undecided	32 (13)	6 (9)	25 (16)
disagree	18 (8)	4 (6)	14 (9)
	prefer working with younger patients		
agree	78 (32)	18 (27)	55 (36)
undecided	54 (22)	9 (13)	39 (25)
disagree	109 (45)	41 (60)	61 (39)

APPENDIX I

Correlations of factor scores with average restraint use per elderly patient

Factors	Average restraint use/elderly patient[a] excl. SR	incl. SR
1. Age preference	-.0707	-.1349 *
2. Custodial care	-.0229	.0034
3. Treatment outcomes	-.0864	-.0803
4. Support of staff	-.1322 *	-.0329
5. Individualized care	.0019	-.1082
6. Ward environment	-.1392 *	-.1407 *
7. Nursing care	-.0881	-.0653
8. Rehab considerations	-.0375	-.0437
9. Time considerations	-.1457 *	-.0998
10. Restr. use consid.	.0637	.0787
11. Beliefs re elderly	-.0038	-.0157
12. Negative attitudes	-.0008	.0181
13. Family reaction	-.0993	-.0842
14. Sitters	-.0622	-.0433
15. Documentation	-.0478	-.0132

Note. [a] r values

* $p < .05$