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**Survival status of elderly nursing home residents following
involuntary relocation**

Ehrmann-Vanderbilt, Irine, M.S.

The University of Arizona, 1993

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**SURVIVAL STATUS OF ELDERLY
NURSING HOME RESIDENTS
FOLLOWING INVOLUNTARY RELOCATION**

by

Irine Ehrmann-Vanderbilt

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A Thesis Submitted to the Faculty of the
COLLEGE OF NURSING
In Partial Fulfillment of the Requirements
For the Degree of
MASTER OF SCIENCE
In the Graduate College
THE UNIVERSITY OF ARIZONA

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SIGNED: *Trine Ebermann Vanderbilt*

APPROVAL BY THESIS DIRECTOR

This thesis has been approved on the date shown below:

Anne Woodtli
Anne Woodtli
Associate Professor of Nursing

12/7/93
Date

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In Memory of

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My parents, Margaret and Fred, who modeled perseverance;
My son, Ralph, who taught me compassion and understanding.

Dedicated to:

My three daughters,

Pamela Kay

Cynthia Kae

and

Charlene Kaye

Who have brought me great joy and still do;

and

My grandchildren,

Gregory

Christopher

Candace

Rebecca

Courtney

Benjamin

Amalia

Elijah

and

?

Who bring me more joy.

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ABSTRACT

Survival status of 45 elderly skilled nursing care residents was examined over a 42 month period following involuntary interinstitutional relocation. Medical and relocation planning records provided data to examine survival status of residents in relation to focal and contextual stimuli. Results were compared to a relocation study previously conducted in the same community.

Significant relationships existed between survival status and family support and participation in relocation planning event. A higher percentage of subjects survived who did not have family support and did not participate in planning events. A significant relationship was found between time intervals in which deaths of male and female subjects occurred. In the first nine months, 13 of 14 males died; six of the 14 females died. No significant relationships were found between survival status and age, gender, mobility, or dementia. Findings suggest the need for continued study of variables affecting survival status of relocated elders.

CHAPTER 1

INTRODUCTION

Relocation is defined as moving from one environment to another for various reasons. It refers to an environmental change that could be: (1) residential (moving from one residence to another), (2) interinstitutional (transferring from one institution to another), (3) intrainstitutional (transferring from one room or unit to another within an institution), or (4) residential/institutional (transferring from a residence to an institution or the reverse) (Rosswurm, 1983). Relocation is a potentially traumatic event in anyone's life; it has increased risks for elderly persons (Muhlenkamp et al., 1975). This study will report on the mortality rates of a mass interinstitutional relocation of elderly residents in a southwest community. It will also compare findings to another study conducted within this same community under conditions where residents were relocated to multiple extended care facilities over a period of several months.

Matteson and McConnell (1988) found that elderly individuals who are subjected to abrupt environmental changes often experience some loss of physical,

psychological, or social function. Their abilities to adapt are challenged with unfamiliar environments, especially when compensatory reserves are likely to be diminished in the domain of physiological function. The relocation may generate anxiety and discomfort and demand coping responses far beyond those evoked by familiar routines (Thomasma et al., 1990). Compensatory reserves may already be taxed by physical illness and relocation demands may put the elder's reserve beyond the capacity to adapt.

The concepts of relocation and mortality and their impact on a population over 65 years of age have been studied for nearly five decades. Earlier research studies, for the most part, have reported adverse, hazardous and even life-threatening effects related to relocation (Coffman, 1981). Terms such as "transplantation shock," "transfer trauma," "relocation trauma," and "relocation effect" have been used to describe the perceived danger of this phenomenon (Matteson & McConnell, 1988). Because the relocation-mortality point of view was so convincing during the 1960's and 1970's, the mortality rate was often the only dependent variable studied or measured. In other words, no other factors surrounding relocation seemed to have been considered during this time period other than the two end points of survival and death (Anderson, 1990).

In the decades of the 1970's and 1980's experts in the field of gerontology (Zweig & Csank, 1975; Gutman & Herbert, 1976; Borup et al., 1980; Bourestom & Pastalan, 1981; Coffman, 1983; Pruchto & Resch, 1988; and Davis et al., 1992) have challenged the hypothesis that there is a positive relationship between the relocation of elderly individuals and mortality rates. Improved data collection instruments and methods of measurement have facilitated a more sophisticated approach to the study of relocation with the elderly population. In general, findings are contradictory but gerontological researchers are questioning the validity of the relocation-mortality hypothesis. Bourstom and Pastalan point out that "The question no longer is whether relocation has negative (or positive) effects but under what conditions and with what kinds of populations are those negative (or positive) effects most likely to be observed" (Bourestom & Pastalan, 1981, p. 7).

Statement of the Problem

This study will investigate the morbidity and mortality associated with the relocation of a group of elderly nursing home care residents. Relocation is considered a life change event that can leave institutionalized elderly individuals at increased risk for morbidity and mortality. Recent studies have suggested that relocation trauma is largely

correlated with factors such as degree of environmental change, type and quality of environmental change, and whether the change was voluntary or involuntary (Bourestom & Pastalan, 1981; Mirotznik et al., 1984). Coffman (1981) summarized the following high risk features: lack of choice or preparation, radical environmental change, mass versus individualized transfer, and being older, male, physically compromised, and mentally impaired. However, he further added that none of these features was adequately documented and that findings were inconsistent.

Institutional nursing care is an inevitable consequence of aging in approximately 25 percent of all Americans. In many cases it is the best solution to a difficult problem (Matteson & Mc Connell, 1988). Institutionalization is often an abrupt and unexpected environmental change that taxes compensatory reserves beyond the elderly person's ability to adapt.

In spite of the negative image of institutionalized care, the number of older people entering long-term care institutions is increasing due to serious health problems requiring skilled nursing care. Spasoff et al. (1978) found that only 3% of nursing home residents would be able to continue to live at home. The remaining 97% were institutionalized because of serious health problems.

Purpose of the Study

The primary purposes of this exploratory descriptive study were to examine the survival status of 50 elderly skilled nursing care (SNC) level clients who were involuntarily relocated from one nursing care facility to another, and to compare results of survival status with findings from a study in which residents were relocated to multiple nursing homes in the same southwest community. Survival status of subjects was examined in relation to (a) age group, (b) gender, (c) ethnic background, (d) payment source, (e) mobility status, (f) diagnosis of dementia, (g) separation from primary group, (h) room-mate change, (i) open house attendance, (j) family assistance on moving day, and (k) intrainstitutional relocation. Survival status of subjects was further examined in relation to the period of time that elapsed between relocation and death.

The questions addressed in this study were:

1. What was the survival status over a three and one-half year period by age group and gender for a group of skilled nursing home residents who had been relocated?
2. Were there significant differences between survival status and (a) ethnic background, (b) payment source, (c) mobility status, and (d) dementia?
3. Were there significant differences between survival status and (a) separation from primary group, (b) room-mate

change, (c) open house attendance, (d) family assistance on moving day, and (e) intrainstitutional relocation?

4. Was there a significant difference between the deaths of male and female subjects and time intervals in three-month increments during the thirty-month period after relocation?

5. How did findings compare to the Anderson Study related to: (a) survival status and gender, (b) survival status and diagnosis of dementia, and (c) time period of death in three-month increments over a twelve-month period and gender?

Significance of the Research

The complexities surrounding government regulations for the care of elderly clients and the need of extended care facilities (ECFs) to survive financially will continue to exist despite efforts to streamline care and cut health care costs. The complexities of maintaining the declining health status of institutionalized elderly clients will also continue to exist. Therefore nursing research studies that investigate the adaptive responses of residents who are relocated, and nursing interventions for mitigating ineffective adaptive responses is imperative.

Factors that influence decisions to relocate elderly clients residing in extended care facilities include

financial constraints and federal government regulations regarding Medicare certification for extended care facilities (ECFs). ECFs cannot afford to hold rooms open for clients where they are serving clients in a Medicare certified bed. Medicare certified ECFs must reserve a certain number of beds in a designated area as Medicare beds (Pruchono & Resch, 1988). When clients are admitted to these Medicare beds they are automatically transferred to another room when their payment status changes.

The fact that advancing age is associated with increasing numbers of illnesses requiring hospitalization produces a scenario that may result in a series of relocations for the resident. For example, the resident may be relocated from home or ECF to a hospital. Depending on the acuity of the illness, a client may be moved from an intensive care unit (ICU) to a step-down unit. Upon discharge from the hospital a resident may be relocated to a Medicare certified ECF bed for further care. A federal government policy, Diagnostic Related Groups (DRGs), requires the early discharge of elderly clients. When the convalescent level for the resident is insufficient at the time of the relocation, the recovery may be prolonged or incomplete for them.

If the Medicare coverage status changes, the client once again is subjected to a relocation to his previous

residence. However, relocation to a previous residence is not assured because ECFs can not hold rooms without financial support, and once again the resident is subjected to a life change event. It is not surprising then that the adaptation level for the resident reaches a non-compensatory level of response, resulting in escalating illness and, in some cases, death.

Nurses confronted with involuntary relocations of elderly residents may not be able to alter a decision influenced by financial constraints and governmental regulations; however, they are in a unique position to assist elderly residents in achieving a positive response to relocation. They can manage this through direct care of residents or by assisting staff involved in the direct care to assess and prepare residents for relocation.

Nursing research on the outcome responses of relocation following preparatory programs for relocation, can provide insight into mitigating trauma associated with relocation. By managing influencing stimuli to conserve the energy levels of elderly residents, the nurse can potentially influence mortality. The critical time period for resident mortality is the first few weeks post relocation; statistically, this is the time when the death rate has been demonstrated to be the highest (Bourestom, 1984).

Nurses can implement programs for elderly residents that allow for choices that increase a sense of control and predictability regarding the new environment. Findings have shown that a sense of control and predictability positively impacts on the mortality rates of relocated elderly residents (Schultz & Brenner, 1977). Including residents and family members in the planning phase of the relocation to the degree that residents are able, may facilitate a sense of integrity during the relocation process.

Nurses need to explore and identify those factors related to pre-relocation planning that specifically promote adaptive outcomes for relocated elderly residents. By identifying these factors nurses can enhance one of the primary nursing roles, that of improving and maintaining the quality of life of the elderly residents for whom they provide care.

Conceptual Framework

Roy's Adaptation Theory will provide the framework for the conceptual orientation for this study. Figure 1 presents the Roy Adaptation Model and Figure 2 presents the application of the model in the research process. Roy's (1984) Adaptation Theory views individuals as adaptive systems responding to stimuli based on their adaptation level with control processes that effect adaptive responses

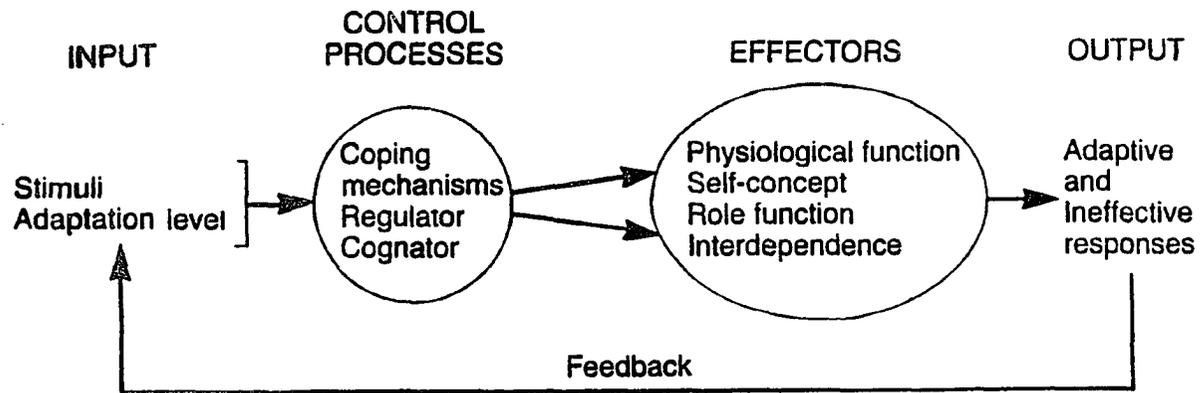


Figure 1. The Person as an Adaptive System. (From Roy, C. (1984). Introduction to nursing: An adaptation model (2nd ed., p. 30). Englewood Cliffs, NJ: Prentice-Hall, with permission.)

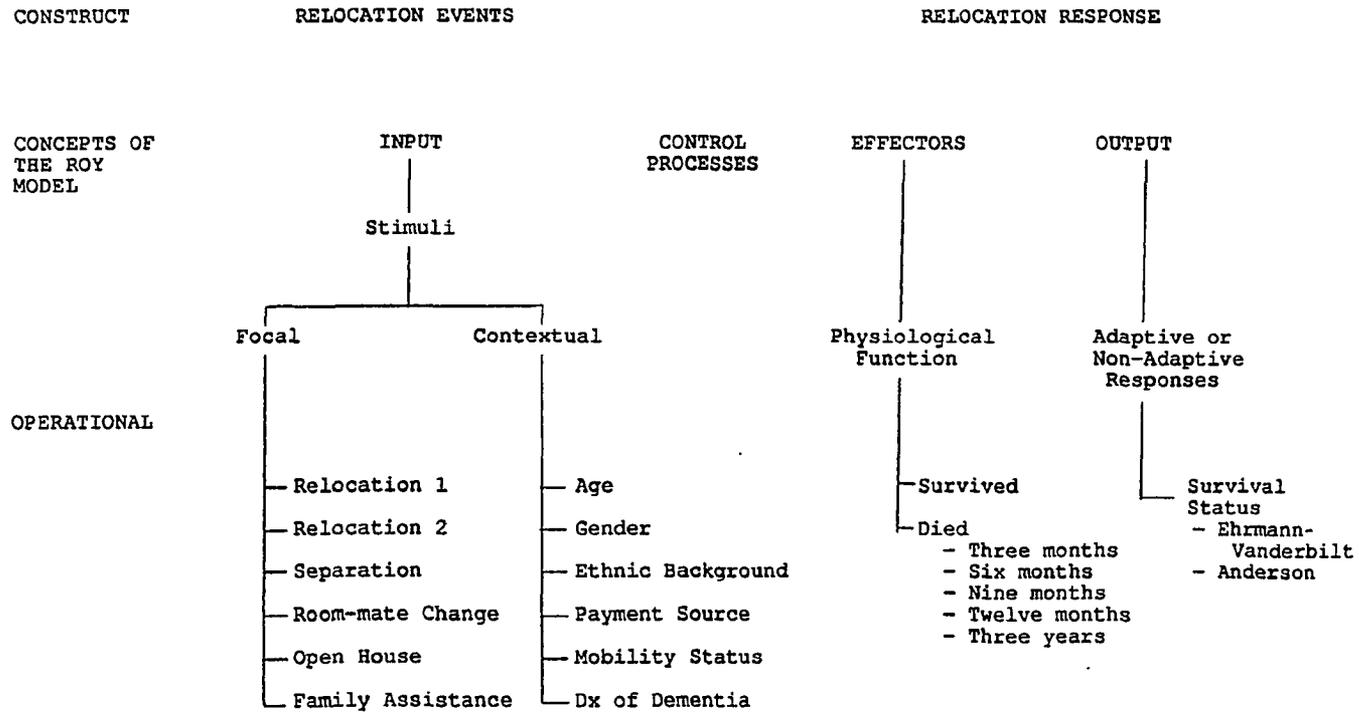


Figure 2. Roy's Adaptation Nursing Model as the Framework for a Relocation Study.

or ineffective responses. Roy believes that individuals are living systems in constant interaction with their environment, who require matter, energy and information from the environment (Galbreath, 1980). This constant interaction with the environment is characterized by internal and external change, and within this changing world individuals must maintain their integrity; that is, they must adapt. Roy further defines adaptation as the function of what is coming into the system and what the system has to do to deal with it (Roy, 1984).

Adaptation

Roy's Adaptation Theory has its roots in Helson's Psychophysics Theory (Fawcett, 1989). According to Helson, (1964), adaptive responses are a function of the stimulus and the adaptation level of the organism. The adaptation level is determined by the pooled effect of three classes of stimuli: (1) focal stimuli, or stimuli immediately confronting the person, (2) background or contextual stimuli which are known contributing factors, and (3) residual stimuli which are unknown factors and include traits, attitudes and beliefs from past experiences which are relevant to the present situation. When residual stimuli become known they are considered contextual stimuli. When an elderly person is confronted with an external focal

stimulus such as a relocation, an internal contextual stimulus could be an anxiety attack precipitated by an inability to process the relocation event due to dementia. The anxiety attack could also be precipitated by residual stimuli surrounding a traumatic relocation from the past.

Adaptive System Input

Adaptation level at the conceptual level is depicted as the input of an adaptive system (Figure 1). This input includes the influences of the internal and external environments and is viewed as "the world within and around the person, group or society" (Andrews & Roy, 1986, p. 7). The person as an adaptive system and as a biopsychosocial being is required to adapt to the environmental influences.

Adaptive System Control Processes

Adaptation occurs through the regulator and cognator subsystems of the adaptive system, which are innate or acquired coping mechanisms used to respond to changing environmental stimuli (Roy, 1984). The regulator subsystem receives input from the external environment and from changes in the person's internal state. Changes are then processed through neural-chemical-endocrine channels to produce responses. The cognator subsystem receives input from external and internal stimuli that involve

psychological, social, physical and physiological factors, including regulatory subsystem outputs. These stimuli then are processed through cognitive/emotive pathways, including perceptual/information processing, learning, judgment and emotion. Responses of the adaptive systems are judged as either adaptive responses, those that promote the integrity of the person in terms of the goals of the human adaptive system including survival, growth, reproduction and mastery, or ineffective responses, those that do not contribute to the goals of the human adaptive system (Roy, 1984).

Adaptive System Effectors

Adaptation is considered to take place in one biological and three psychosocial modes also referred to as effectors (Figure 1). Roy defines a mode as a way or method of doing or acting; therefore a mode of adaptation is a way of effecting change. These adaptive modes or effectors are activated when need excesses or deficits are created within the individual.

Physiological adaptation. The biological mode of adaptation is concerned with physiological function (Figure 1). It is concerned with basic need requisites to maintain the physical and physiological integrity of the human system. It involves fluid and electrolyte balance; exercise and rest; elimination; nutrition; circulation and oxygen;

and regulation which includes the senses, temperature and endocrine regulation (Roy & Roberts, 1981).

Hans Selye has conducted extensive research and written extensively concerning the body's attempt to restore homeostatic balance by means of adaptive hormones. Selye (1978) found that a predictable, nonspecific, generalized syndrome results when incoming stimuli has a shocking effect on the biological system. He labeled this phenomena a General Adaptation Syndrome (G.A.S.). This G.A.S. evolves in three stages: (1) alarm, which has two phases—shock and countershock; (2) resistance; and (3) exhaustion. It is in the alarm phase that the sympathetic nervous system activates the adaptive hormones to restore homeostatic balance. In the resistance phase the body continues to struggle for balance as hormones become depleted and tissue changes begin to develop leading to irreversible organ damage. As the hormone supply becomes depleted, the third stage (exhaustion) occurs and death ensues, unless drastic action is offered from external sources.

Thomas (1979) found that physically compromised, elderly persons required a longer period of time to replenish the supply of adaptive hormones. This delay in replenishment of protective hormones could cause the organism to become exhausted and die before the stage of resistance is activated. Elderly individuals may recover

from one episode of a traumatic stimulus, but may not have time to replenish for a second traumatic stimulus such as an interinstitutional relocation followed by an intrainstitutional relocation.

Psychosocial adaptation. The psychosocial modes of adaptation include: self-concept, role function, and interdependence (Roy, 1984). The self-concept mode deals with people's conceptions of their physical and personal selves. Self-concept is a composite of beliefs and feelings that one holds regarding oneself at any given time. These beliefs and feelings may be motivated by perceptions one holds regarding others behaviors and reactions, and ultimately directs one's own behavior. Self-concept has two components which includes: (1) the physical self involving body image and sensation and (2) the personal self made up of self-consistency, self ideal or expectancy and the moral ethical self. In elderly the self-concept mode may be heavily impacted by a stroke with a paralysis. They may no longer perceive themselves as whole beings and feel that family is rejecting them when they are institutionalized because the family is no longer able to care for them at home.

The role function mode is concerned with people's performance of roles on the basis of their positions within society (Roy & Roberts, 1981). Roles performed are

dependent on societal positions and expectations, and one's interaction with others in any given situation. A primary role, one's developmental level as a generative adult, can have secondary roles branch off as mother, wife, or grandmother. Tertiary roles can branch off as key community workers such as being president of an organization for a given time. Disruption of the role function mode through losses in role positions through age related illnesses may leave a negative influence on a sense of meaning and purpose to life as a contributing member of society. Elderly experiencing nursing home placement for physical disabilities may have difficulty adjusting to the need of having someone move their belongings.

The interdependence mode deals with development and maintenance of satisfying, affectional relationships with significant others (Roy & Roberts, 1981). In this mode one's involvement with a mutually satisfying and supporting relationship maintains one's psychic integrity through nurturance and affection. Elderly who have family who are affectionate and nurturing for the most part have a greater capacity for psychic integrity. A group of residents in a nursing home could have a similar relationship that is affectionate and nurturing among residents and nursing staff. In the adaptive system, the four modes or effectors

of adaptation are interrelated in that responses in one may affect one or more or all of them at any given time.

Adaptive System Output

The output component of Roy's Adaptation Model is concerned with whether an adaptive response occurred or an ineffective response occurred. An adaptive response indicates that the person adapted and survived the influence of the environmental stimuli. An ineffective response indicates that the person did not adapt and did not survive the influence of the environmental stimuli.

When considering the goal of nursing in a relocation process, one would look toward avenues for managing internal and external environmental stimuli to facilitate an adaptive response. Management encompasses increasing, decreasing, maintaining, removing or otherwise altering or changing relevant focal and/or contextual stimuli. Through careful planning of activities, a sense of control and predictability can be facilitated to diminish the deleterious effects associated with an involuntary relocation for elderly residents. Involving residents and family members in the relocation process is perhaps the most beneficial of all interventions.

Application of the Roy Adaptation Model

The conceptual terms of the Roy Adaptation Model that will be providing the framework for this study are stimuli, physiological function and adaptive and ineffective responses (Figure 2). The independent variables examined in this study are identified as focal and contextual stimuli and are considered to be input for the adaptive system. The primary independent variable examined as a focal stimulus is the interinstitutional relocation of 50 residents from one nursing home to another. Additional independent variables examined as focal stimuli are: (a) separation from the primary group of residents to another unit, (b) a room-mate change at the new residence, (c) open house attendance by residents and their families two months prior to the relocation, (d) family assistance in the relocation process on moving day, and (e) an intrainstitutional relocation for some of the residents within 2-3 months of the initial relocation. Independent variables examined as contextual stimuli are age, gender, ethnic background, payment source, mobility status, and diagnosis of dementia.

The dependent variable, survival status, will be conceptually identified as a physiological function effector. Survival status will be categorized as survived or died and will be measured in one-half month increments for death post relocation and then grouped into three month

increments over a three and one-half year time period. Conceptually as output, survival will be considered an adaptive response and death will be considered a nonadaptive response to the focal and contextual environmental stimuli experienced by nursing home residents.

The level of adaptation at any given time is determined by the pooled effect of focal, contextual and residual stimuli. In this study the focal stimuli with relocation and separation of the group could leave a deleterious effect, and at the same time the interventions planned could be mitigating the stress, leaving no measurable change in the outcome.

Assumptions

The assumption was made that nursing staff on the two units in the nursing care facility gave similar care within the same agency though not necessarily equal nursing care. A second assumption was that subjects were high risk because many of them were elderly, institutionalized and at the skilled nursing care level. A third assumption is that residents have had different life experiences with residual influences that can determine coping capacities and adaptation outcomes.

Limitations

Raw comparative data from the Anderson Study was not available for comparative analysis. Analyzed data from frequency tables in her study were used as comparative data. Similar approaches were used to analyze data for this study so that a comparative analysis would reflect a more accurate picture of survival status outcomes.

Definition of Terms

The following terms are defined conceptually and operationally:

ADAPTATION: an organism's reaction to change in response to internal and external environmental stimuli. In this study, the organism is the elderly individual being relocated.

INPUT: external stimuli from outside the self and internal stimuli from within the self. In this study the primary input examined were variables identified as focal and contextual stimuli.

FOCAL STIMULI: the confronting stimulus that demands adaptation. In this study the focal stimuli are interinstitutional relocation, intrainstitutional relocation, separation from the primary group, room-mate change, open house attendance, and family assistance on moving day.

CONTEXTUAL STIMULI: known contributing factors that influence adaptation. In this study the contextual stimuli are age, gender, ethnic background, payment source, mobility status and diagnosis of dementia.

EFFECTORS: ways or modes of adapting or coping that manifest regulator-cognator activity producing an adaptive response or ineffective response. In this study the physiological function mode was the only mode examined and was measured as survival or death.

OUTPUT: the response to the incoming stimuli. In this study an adaptive response, survival, indicates that the integrity of the organism was maintained; a nonadaptive response, death, indicates that the integrity of the organism was not maintained.

SURVIVAL STATUS: survival status reflects whether the resident is living at the end of three years or whether the resident died anytime after the relocation time beginning with day one. The time periods examined in this study are in three month increments over a 30 month time period after relocation of the subjects.

INTERINSTITUTIONAL RELOCATION: all residents were relocated from one institution to another.

INTRAINSTITUTIONAL RELOCATION: residents were relocated within the new nursing home due to regulatory discrepancies.

Summary

In this chapter the concept of relocation in elderly nursing home residents as an environmental stimulus with adaptive or nonadaptive consequences was presented. The purpose of this exploratory descriptive study was to investigate the survival status of 50 residents relocated from one institution to another, and to compare the results to another involuntary relocation study conducted in the same southwest community. Independent variables examined as contextual stimuli included age, gender, ethnic background, payment source, mobility status and diagnosis of dementia. Independent variables examined as focal stimuli were group separation, room-mate change, open house attendance, family assistance on moving day, and intrainstitutional relocation. The conceptual framework guiding the study was presented; the conceptual framework is based on Roy's Adaptation Model.

CHAPTER 2
REVIEW OF THE LITERATURE

The review of the literature regarding relocation includes studies on home to home, home to institution, interinstitutional and intrainstitutional relocations. Included in this discussion will be factors that seem to play a major role in adaptation, that is, a positive response with good or better health verses maladaptation, a negative response with poor health or death. The discussion will also include insights regarding the variation in relocation responses as a function of two major factors: (1) the perceived predictability and controllability of the events surrounding a move, and (2) differences in controllability between the pre and post relocation environments. Four major conditions to be addressed will be (1) the characteristics of the relocatees, particularly their physical and mental health, (2) whether the move is voluntary or involuntary, (3) the degree of environmental change involved, and (4) the planning and preparation for the move. In addition, Anderson's relocation study will be presented in detail, since its findings will serve as comparison for results of the current study.

Early Studies/Impact of Social Changes

Interest in the phenomenon of relocation trauma began in 1945 with the publication of a paper by Camargo and Preston (1945) titled "What happens to patients who are hospitalized for the first time when over sixty-five years of age?" These investigators found that nearly half died in the first year, and by the third year over two thirds were dead. Many of the deaths were abrupt and within the first three months of hospitalization.

Whittier and Williams (1956) reported similar findings ten years later of patients 60 years and older. Their findings reflected one in five died 30 days after admission to a state hospital in New York, Pennsylvania and Maryland, and one in two would be dead within the first year. Findings were remarkably consistent with first year mortality figures ranging from a low of 47% to a high of 68%.

The deinstitutionalization movement, emphasizing alternatives to institutional care ushered in mass transfers of elderly residents from mental hospitals to nursing homes (Bourestom, 1984). Regulatory pressures resulting from Medicare and Medicaid legislation made transfers from nursing home to nursing home common place. It is during this time period that the terms "transplantation shock", "relocation shock", and "transfer trauma" were coined to

describe the findings reflecting increased mortality with interinstitutional relocation, spurred by the social changes.

It was in May of 1974 that Senator Charles Percy introduced legislation that "a decision to transfer a resident could only be made if, in the judgment of the attending physician, the transfer would be in the best interest of the patient with full consideration of the potential impact of the change." This legislation also mandated appropriate affirmative action to assure that any individuals discharged or transferred from a facility would have the benefits of a planned program of information and counseling designed to assist them in adjusting to the changes in their care and surroundings in order to minimize the personal stress which accompanies such changes (Percy & Clark, 1974).

Studies during this time period were contradictory and inconclusive with many reporting the negative effects of higher mortality, increased symptoms, depression and withdrawal tendencies; however some studies suggested that relocation may have positive effects such as improved health and increased life satisfaction, especially when the move was to a new and improved environment (Bourestom, 1984). Borup et al. (1980), on the basis of their study of 529 relocated nursing home residents in the state of Utah

concluded that relocation can actually have positive effects on various aspects of functioning such as hypochondriacal behavior and patients' stamina levels.

The designs of studies shifted to examining factors other than mortality by exploring approaches to decreasing the negative responses reportedly associated with relocation. Bourestom (1984) in a summary of relocation studies reported negative relocation effects on mortality in three of four studies involving intrainstitutional relocation. He further reported that out of 19 studies involving interinstitutional relocation, eight reported no negative relocation effects on mortality and eight reported negative effects on mortality. Three of the 19 studies did not examine mortality effects.

Characteristics of Relocates

As studies on relocation have become more sophisticated examining the characteristics of elderly relocatees has moved into the foreground for investigation as one of the major factors in determining relocation response outcomes. The characteristics identified and discussed here are considered to be contextual stimuli in Roy's Adaptation Model. Beaver (1979) was able to accurately predict the adjustment of 69% of her subjects. Good health proved to be the most powerful predictor, accounting for 54% of the total

variance. Bourestom and Pastalan (1981) have argued that the inconsistency of results in relocation studies have been due to some degree to underlying qualifying factors, such as characteristics of people being moved. The major findings are that of physical status, cognitive ability and certain personality characteristics. Lieberman (1974) summarizing four of his own studies on relocations, concluded that survival and adaptation in relocation situations are related to each individual's physical and cognitive condition. In a relocation study with a matched control group in another state hospital, three times as many died among the relocated.

Characteristics that need to be considered with relocation will be different for the psychologically intact population than for those in poorer physical and psychological health. The needs of a psychologically intact individual with feelings of hopelessness or despair will differ from the needs of individuals with poor physical and psychological health with functional adequacy needs to facilitate adaptation. Individuals in poorer health and with impaired cognition are the ones most likely to be overwhelmed by the adaptive demands of relocation.

Killian (1970) found that death rates were particularly increased for the older non-ambulatory patients. Goldfarb et al. (1972) reported that involuntary relocation had a

differential effect depending on physical health and severity of dementia, and those with considerable physical functional impairment had the highest mortality rate when relocated. In contrast, those residents whose cognition was not severely impaired and who were functioning relatively well physically had no adverse effects and may even have benefited from the relocation.

Blenkner (1967), in a review of relocation studies, stated that severe brain dysfunction emerged as the one unequivocal indicator of high risk in relocation situations. Markus et al. (1970), also, reported that individuals with severe cognitive dysfunction as measured by a mental status questionnaire had significantly higher death rates six months following relocation than did other relocated residents. Investigators in this same study, also examined the chance for survival of what they defined as a field independent person -- a person who "displays relatively well developed analytical abilities, uses specialized defenses, and holds clearer self and body concepts...who imposes his own person on whatever environment he happens to be in." They found a better chance for survival among this group than among others relocated.

Markus et al. (1972) in a later study sought to determine the predictive efficiency of four classes of variables; age, perceptual field, independence, mental

status and physical status. The subjects, 105 men and 268 women, relocated from two old downtown buildings to new suburban facilities, were followed for nine months. The best predictor of mortality proved to be a multidimensional assessment of physical status, followed by mental status and field dependence. Age did not discriminate between survivors and non survivors.

A study by Bourestom and Pastalan (1981) showed that health status was a significant predictor of survival following relocation. Using estimations by a physician of a client's prognosis and vulnerability to death, they found that the most vulnerable patients were those who were older, had shorter hospitalizations, were female and had more severely impaired cognition.

Adverse effects of relocation on mortality rates and on health and adaptation in survivors imply that the trauma associated with relocation in some way affects the physiologic functioning of the individual. In a study by Kral (1968) the physiologic effects of relocation were assessed by measuring the levels of cortisol in the plasma of 54 aged subjects for a period of three to eight days before relocation and for nine to 16 days after relocation. Production of cortisol, a hormone originating in the adrenal cortex, is thought to increase during a traumatic environmental stimulus. Forty of fifty-four subjects were

without psychiatric or neurologic illness with the remaining 14 subjects suffering from organic or functional psychosis. Following relocation cortisol levels increased significantly in men and those judged to be psychotic, but not in women or those judged to be psychiatrically normal. The greatest cortisol level change was observed in the residents with the most severe physical symptoms following relocation. A strong association between cortisol level and mortality level was reflected with one fourth of the normal men, but none of the normal women dying within the first six months after relocation. Within 23 months of relocation significantly more psychotic subjects than normal subjects died.

Maxwell (1981) found increased cortisol levels associated among aged persons anticipating relocation into a retirement village. Results were compared with a matched nonrelocated control group living in the community. Both groups were divided according to the number of life change events (LCE) experienced in the past three years. Results showed that urinary cortisol excretion was higher for those anticipating moves than for the non-movers and this was true across all three LCE categories (high, medium and low).

In addition to physical and mental impairment, certain personality characteristics have been linked with higher mortality after relocation. Liebermann (1969) contended

that individuals most vulnerable to relocation were those characterized by depression with associated feelings of hopelessness and despair. Aldrich & Mendkoff (1963) and Aldrich (1964) along with Lieberman noted that elderly individuals characterized as aggressive, demanding, active and narcissistic were most likely to survive relocation whereas those individuals overtly depressed or psychotic before relocation had the highest death rates. All concurred that reactions to relocation characterized by depression, giving up and hopelessness-helplessness are linked to higher mortality and other adverse affects, while those characterized by anger and aggression are linked with a greater chance of survival.

Wells and McDonald (1981) studied interpersonal networks of 56 residents in a home before and after relocation, assessing intimate relationships with residents, staff, family and friends. They found that close primary relationships were associated with successful adjustment to relocation as measured by changes in life satisfaction, degree of physical infirmity and psychological deterioration.

Kasl (1972) summarized characteristics of elderly, who are particularly vulnerable to the trauma of relocation, as follows: "Being male, older, and in poor health; living alone and having few contacts with friends and kin; in poor

financial circumstances and of lower social class; having lived in old neighborhood a long time; of low morale and life satisfaction, reacting to the move with depression, giving up and hopelessness-helplessness." In summary one can see that there are many determining factors that can impact on the relocation adaptation response.

Voluntary Versus Involuntary Relocation

Schultz and Brenner (1977) have pointed out that two factors -- predictability and controllability -- play a major role in the response to relocation. The greater the perceived controllability or predictability of the relocation the less aversive and harmful are its effects on the organism. More specifically, voluntary relocatees fare better than involuntary relocatees. However the voluntary or involuntary relocation response is tempered by the quality of the new environment and the degree of environmental change involved in the move. Voluntary moves involving radical environmental change (e.g. from home to institution) produce more adverse effects than voluntary moves involving more moderate change (e.g. relocation within the community). Beaver (1979) found that among 13 correlates, voluntary moving proved to be the second most powerful predictor, next to good health, of successful relocation.

A major study done by Carp (1974) involved a comparison between 204 applicants who moved into an apartment dwelling for the elderly and a matched group of 148 applicants who did not. Approximately one year later data revealed fewer illnesses and less time in bed among the relocatees. Eight years later 26% of the movers versus 37% of the comparison group had died. Carp attributed the improved social adjustment, psychological well-being, health status, and lower death rate among the movers to their improved living conditions.

Wittels and Botwinick (1974) in their study of 732 applicants involved in a voluntary relocation and compared with a matched sample, found that the deceased in both groups were older, in poorer health and were more likely to be men, than those who survived.

In contrast to the positive or neutral effects noted with voluntary relocation, research is consistent in showing negative affects when a forced relocation occurs. Data suggest that forced moves involving radical environmental change (e.g. from home to institution or from one institution to another) may literally be lethal. Ferrari (1963) studied two groups of aged individuals -- one entering an institution voluntarily and the other having no alternative. Both groups moved from home to the institution. Within ten weeks 16 out of the 17 persons

(94%) in the involuntary group died, whereas the death rate among those who moved voluntarily was considerably less with one out of 38 (2.6%) dying.

In another study by Killian (1970) 600 geriatric psychiatric patients were involuntarily relocated due to closure of some units at Stockton State Hospital in California. The relocation effect was studied by comparing mortality rate with matched group of patients who stayed in their home units. Over a four month follow-up period mortality rates for the transferred group were 4-9 times higher than for non-transferred controls. The highest mortality occurred among transferred patients who were older and non-ambulatory as compared with their control counterparts.

In still another study done by Marlowe (1974) 429 residents over 65 years of age were relocated to other state hospitals, community facilities or their families. Patients at another state hospital matched as closely as possible on age, sex, length of hospitalization, and self care ability served as a nonrelocated comparison group. Following a one year period the results showed that relocation had deleterious effects both in terms of death rates and in terms of deterioration in overall condition. The death rate for the relocatees was double that in the same facility in

the two years prior to relocation and more than three times that among the control population.

Study findings for the most part have suggested that persons relocated involuntarily consistently suffered some form of setback, including higher than expected death rates, while those moving by chance remained the same and even improved on some indicators (Bourestom, 1984). It has become increasingly evident that relocation effects vary, sometimes dramatically, as a function of the degree of choice and control the relocatee has in the situation.

Degree of Environmental Change

As indicated in the preceding section evidence has accumulated to suggest that relocation effects vary not only as a function of voluntariness, but as a function of the quality of the new environment and degree of environmental change. The amount of change involved in relocation situations appears to be a factor in relocation adjustment and survival.

Bourestom (1984, p. 72) states that generally the greater the difference between the old and new environment, the greater the possibility that the elderly persons will need to develop adaptive responses that are often beyond their capacity. The bulk of the evidence suggests that the adverse effects of relocation correlate with the amount of

unfamiliarity associated with the relocation and that when unfamiliarity is minimized it may be possible to reduce risks.

Lieberman (1961) found that the death rate following extensive environmental change (home to institution) was 2.5 times greater than that during a waiting period for a comparable group for whom the environment remained stable. Costello and Tanaka (1961) reported similar findings in a similar study. Both studies reported a mortality rate of 38% in the first 6 months after admission compared with an 11% death rate during a one month waiting period.

Miller and Lieberman (1965) in another study of 40 aged residents moved from a home to a state institution obtained similar results where the prerelocation home contrasted markedly with the new location. All subjects were interviewed and tested to measure psychological abilities and affect states prior to the move and again at 6 and 18 weeks after the move to the new institution. Negative reaction defined as death or adverse physical and psychological changes occurred in 23 of the 45 subjects within 18 weeks. Although there was no comparison group in this study, all of the subjects were free from any incapacitating mental or physical illness, suggesting that it was the relocation and not the health condition of the subject that produced the negative changes.

Bourestom and Pastalan (unpublished data) and Bourestom and Tars (1974) studied two groups of elderly county home residents who were relocated involuntarily. One group experienced a radical environmental change from the old country facility to a new and much larger proprietary nursing home in a nearby community. For these residents the change was total, requiring them to make adjustments to a new staff, a new program, a new physical environment and a new patient population.

The other group had many fewer adjustments to make with a moderate change in the physical environment -- move to a new building several hundred yards away. Staff and patient groups remained intact, as did the nature and structure of the program. Matched nonrelocated control groups were established for each of the relocated groups and data for all four groups were collected one month prior to relocation and at intervals of one, four, eight, and twelve months.

The most dramatic finding was a strikingly higher mortality rate for the relocated group than for their non-relocated counterparts. The effect was notably greater for the radical-change group than for the moderate-change group. In the six months preceding and the year following relocation, 43% of the radical change group died compared with 21% among their nonrelocated controls. The moderate change group experienced a 37% death rate compared with a

26% rate among their controls. The authors also reported that in addition to higher mortality rates the radical-change group also showed decrements in health outlook and behavioral functioning, declines which were not evident in the moderate-change group or the non-relocated control groups. The authors concluded that the major contributing factor in the involuntary moves was the degree of environmental change involved.

In a study done by Gutman and Herbert (1976) over a 21 month period, 81 males were relocated from a general hospital to a new building a short distance from the relocation site. The change was considered a moderate one in which staff, patient friendship patterns and geographic location remained essentially constant. The mortality rate during the first year of relocation was computed with the average annual rate during the 5 years preceding the move and no increase was found.

Watson and Buerhle (1976) studied the involuntary relocation of geriatric neuropsychiatric patients, within a Veterans Administration Medical Center, to wards whose architecture, furniture, staff attitudes, and daily routines varied little from the setting they left. Evaluation at four months and twelve months reflected no increase in deaths or transfers to medical wards among those relocated.

A study similar to the above by Haddad (1981) where 389 elderly patients of a psychiatric hospital were intrainstitutionally relocated showed similar results. Units to which patients were transferred provided improved facilities for meeting health care standards with no major pattern or routine of care disruption. A before and after analysis of mortality rates and behavioral rating scores showed no increase in mortality or deterioration following the move.

Only one study of intrainstitutional relocation demonstrated negative effects attributable to relocation. Pablo (1977), in a study of 26 males and 26 females compared to a like group who did not relocate, found that the mortality rate was consistently higher among male movers than non-movers. Investigators explained the differential effect in part due to: (1) male movers accepted the change less readily, (2) several of the male patients had conditions that were terminal, and (3) a greater number of male movers had only been in the facility a short time and had not fully adapted to the new placement before another move occurred.

Pablo's (1977) study suggests that even minimal environmental changes can impact sufficiently to affect survival. The residents had moved to new settings where relationships and familiar surroundings were preserved and

disruptions of everyday routines and family visitation patterns were kept to a minimum. Despite these precautions, the move entailed greater than acceptable risk. This study also suggested that individual characteristics, in this study being male, reflect a variance of relocation effects.

Planning and Preparation for Move

In addition to characteristics of relocatees, voluntariness of the move and environmental factors, evidence has accumulated to suggest that the way in which the relocation process is managed determines how well the individual is able to manage the move. Relocation affects may be mitigated by the degree and perhaps the type of preparation for the relocation (Bourestom, 1984). In other words, the relocation process as a focal stimulus could make a difference in the outcome of survival status.

Bourestom (1984) further states that adequate preparation for relocation begins first with acknowledging that a move is a complex task which requires time and strategic planning. This is especially so among elderly who experience any physical change as a threat. The anxiety level is elevated facing giving up what is comfortable and known for the unknown. The move deprives them of familiar cues and environmental supports and forces them to cope with a new set of stimuli in an unfamiliar environment. Such

demands may severely tax adaptive capacities, particularly in individuals whose functioning is impaired, and can result in a variety of stimulus responses, including death.

Relocation preparation generally includes interventions that: (1) allay fear and anxiety, (2) increase familiarity with the new environment, (3) involve residents in the decision making as much as possible, and (4) provide emotional and social support. These interventions can take form through counseling, education, site visits to the new location for the relocatee and orientation and inclusion of family, volunteers and staff members at all levels to provide physical and emotional support (Bourestom, 1984). The least traumatic approach is a realistic appraisal of the move in advance, with maximum opportunity for choices in how it will be done.

Several investigators have examined the effects of pre-relocation preparation programs. Grey (1978) reported a vastly reduced mortality rate compared to the previous two years, following an elaborate preparation program for 137 residents being moved from a home for the aged to a new building.

Pastalan (1976) also implemented an extensive preparation program where three different preparation programs were instituted with site visits to the new location before relocation, group discussions regarding the

move and personal counseling consisting of discussions between staff and patients of the impending relocation. The results showed that all three programs were effective in reducing mortality rates as compared with patients who did not participate in any of them.

Bourestom et al. (1973) in a similar study found that preparation involving site visits was far more effective in reducing mortality rate than either group discussion or personal counseling. One program involved repeated site visits to the new facility; the other was limited to group and individual counseling. The results showed the mortality rate for the site visit group was one half that of the counseling group one year following relocation.

Nirenberg (1983) also, supported the importance of site visits in a study where residents were assigned to a verbal program or a behavioral program. The verbal program consisted of training in coping and problem solving skills; the behavioral program consisted of graduated exposure to post move environmental stimuli and behavioral response training. The behavioral skills program led to significant post relocation changes among low functioning subjects while the verbal skills program did not have such an effects.

Pino et al. (1978) analyzed relocation effects among four groups: Group I - residents from home or hospital to nursing home; Group II - transfers with special preparation

for move to new building; Group III - Transfers with no special preparation for move to new building; and Group IV non-relocated control group. The investigators, using measurements of mental alertness and activities of daily living, found that the prepared group declined less than any other group. The authors concluded that successful adjustment to a new nursing home environment is affected by preparation for the move and that pre-preparation should be an integral part of relocation plans for all aged patients.

Novich (1967) made elaborate plans to relocate 125 residents (average age 81) with frequent bus trips to the new site so residents could watch the new building being built. They helped pick fixtures for the new building, participated in discussions with social service staff, and were involved in both packing and unpacking of their personal belongings. After relocation the mortality rates were actually lower than what would have been expected on the basis of mortality rates in the pre-relocation environment.

Zweig and Csank (1976) attributed successful relocation to a well managed pre-preparation program. In comparing mortality rates of patients in the same ward three years prior to relocation and one year after they found that there was a 6.82% decrease in mortality rate. Jasnau (1967) also found that a mass-moved group of state hospital patients had

an increased mortality rate while the group who had individualized pre-preparatory treatment had lower than expected mortality rate.

Anderson Relocation Study

Anderson (1990) examined the mortality rate of 77 elderly nursing home residents relocated over a 13 month period. Subjects for the study were relocated to 13 different nursing homes following a decision to close a skilled care area in a county nursing home for remodeling. The sample consisted of 13 men and 64 women with a mean age of 83 years old.

Findings showed that 31 (40%) of the relocated subjects died within the 13.5 months post relocation. Sixteen (52%) of these deaths occurred within six weeks of relocation. Data reflected that mortality increased with age, from 14% for those 60 years old to 73% for those in their nineties. Age was the only variable found to be statistically significant between those who lived and those who died. A calculation of quarterly mortality rates post relocation reflected that 55% died the first quarter, 10% the second quarter, 10% the third quarter and 25% the 4th quarter.

The percentage of females (42%) who died was higher than for males (31%), contrary to findings in the literature (Wolanin, 1978; Tallner, 1984). Eighty-seven percent of

those that died were female, with females only making up 83% of the sample. It was an outcome that was not expected.

One factor that may have contributed to the high mortality rate was the level of dementia found in this study. Fifty-eight percent of those that died had a diagnosis of dementia and yet only 23% of the total subjects had a diagnosis of dementia. Multiple diagnoses for those that died totaled 3 in number versus 2.8 in number for those that lived, which may also have played a role in the outcome. When the most frequent diagnoses of subjects who died and those who lived were compared, findings showed that the four most frequent diagnoses were the same. The four diagnoses in order of frequency were dementia, degenerative joint disease, cardiovascular disease and fractures. An important finding in Anderson's relocation study was that 52% of the subjects died within six weeks of their relocation, suggesting that the traumatic effect of relocation of the frail elderly may have been related to mortality.

A literature search for studies using Roy's Adaptation model as a framework for relocation studies was conducted. Although a number of studies have cited Roy's model for the conceptual orientation of research studies, none was found that used this model for a relocation study. Anderson cited

Roy's Adaptation Theory and Dohrenwend's Stress Theory as the basis for her Relocation Response Model.

Summary

The review of the literature revealed some conflicting results; some investigators reported increased mortality while others reported decreased mortality associated with the relocation process. However, the more recent studies indicated that relocation preparation programs resulted in fewer deleterious effects on the health and mortality of elderly subjects relocated. Involuntary relocation and radical environmental change had the greatest negative impact on the mortality rate and health status of the elderly residents. Individual characteristics are additional determining factors that influence the potential for adapting to the new environment without deleterious consequences. Specific preparatory programs have demonstrated a positive impact on the relocation adaptation response in elderly residents.

CHAPTER 3

METHODOLOGY

In this chapter the research methodology is presented. The discussion will include presentation of the research design, sample and setting, protection of human subjects, data collection tool and plan for data analysis. The primary purpose of this study was to examine the mortality rates following an involuntary relocation of 50 elderly skilled nursing care level residents who were involuntarily moved from one nursing care facility to another.

Design

An exploratory descriptive design guided this study and incorporated a retrospective record review. Data were collected from the records of 50 residents relocated as a group from one institution to another. Additional data regarding specific client characteristics and relocation preparation event participation were gathered from summary sheets completed by a key staff member involved in both the planning and moving process and the three and one-half year post relocation period.

The dependent variable under study was survival status. Subject survival status was examined in relation to the period of time that elapsed between relocation and death. The independent variables selected for the study included: (a) age, (b) gender, (c) ethnic background, (d) payment source, (e) mobility status, (f) diagnosis of dementia, (g) separation from primary group, (h) room-mate change, (i) open house attendance, and (j) intrainstitutional relocation.

Study Sample

The study sample consisted of a group of 50 elderly residents in a southwest community, who were involuntarily relocated. They were relocated as a group from an older single story skilled nursing facility to a modern two story skilled nursing facility. The age range of sample was 50 to 103 years. The sample consisted of 29 males and 21 females. The group was comprised of forty-five white non-Hispanic, three Hispanic, and two African-American subjects.

Background

The agency's decision to relocate the residents from the older facility to the newer facility was an administrative one to facilitate more efficient management of the space, staff and financial resources while providing

care for elderly clients living within their two facilities. The newer building was able to accommodate all of the residents living in the older facility.

Residents were relocated over a two day period with forty two residents moving to the new facility on day one and eight residents moving on day two. Twelve residents were separated from the primary group and relocated to another floor with a different primary supervisory caregiver. The primary aide and personal care provider remained the same for all residents. Wherever possible room-mates were kept the same, however that was not always possible due to differences in size of resident rooms in the new facility versus the old facility. From a group of 43 residents living in multiple occupancy rooms in the old residence, 23 residents had the same room-mate in the new residence, 19 residents had room-mate changes, and one resident moved to a private room. Seven residents had private rooms in both the old and new residences.

Residents were given special considerations in the placement of their beds and belongings. To facilitate adjustment to the new residence with the least amount of trauma, arrangement of the resident's rooms was as similar to the old residence floor plan as possible. Room arrangements included location of the bathroom as close to the design of the old residence as possible to eliminate

resident confusion in finding the bathroom, especially at night.

Preparations for the relocation included an open house for residents and their families, and involvement of family in the relocation process on moving day. Thirty six residents and their family members attended the open house. An equal number of residents had assistance from their family members on moving day.

All staff members were informed of the relocation at the same time. Family members were informed of the relocation before the residents were informed to enhance family support for residents at the time of their notification. Not all residents were notified of the relocation during the initial information release day. Twelve residents were not told about the relocation plans until the day before the relocation. Nursing staff believed the residents would not benefit from advance notice due to cognitive impairment, and possibly would experience adverse effects.

On moving day staff members moved with their assigned residents and resident's personal belongings. Because the group was moved to an existing skilled nursing care facility with four units of fifty beds, each with some rooms already occupied, the group of fifty residents was divided into two groups for placement in the new facility.

In spite of the well planned design, some changes occurred that were not in the initial relocation design. One such change was a decision to relocate a number of the residents a second time. Approximately two months after the initial move, fourteen residents were relocated within the agency. Four others were relocated at different times, all within three months after the interinstitutional relocation. The interinstitutional relocation along with an intrainstitutional relocation presented a unique opportunity to assess the impact of major life change events within a very short time period, among a vulnerable population.

Instrument and Data Collection

Data initially were collected one week prior to the relocation of the group being studied on a Data Collection Form for Relocation Study (Appendix A) designed by this researcher. A second set of data was collected approximately three months after the relocation using a revised version of the Data Collection Form for Relocation Study (Appendix B). Data collected three months post relocation included mobility status, primary supervisory caregiver status, room-mate status, family support on moving day, open house attendance at new residence prior to relocation, when informed of move to new residence and whether intrainstitutionally relocated. These data were

gathered from flowsheets completed by a staff development employee involved in the planning and relocation process. A third and final data collection period occurred approximately three and one-half years after the relocation to elicit information regarding survival status of relocated residents.

The initial data collection instrument included the following demographic variables: age, date of birth, date of death, gender, date of admission to the nursing home, payment source, diagnoses and mobility status. Additional data collected at subsequent periods included pre and post-relocation events such as dates of relocations (interinstitutional and intrainstitutional), dates for information release to residents, available family support to help move, open house attendance, room-mate change, floor change, and primary supervisory caregiver change.

Intrarater reliability was not addressed. One researcher collected the data. Written permission to conduct this study was granted by the administrator of the skilled care facility (Appendix C).

Data Analysis

Data collected with the Data Collection Form for Relocation Study (Appendix B) were analyzed, using frequency distributions, measures of central tendency and the chi

square test of statistical independence for nominal level data. Findings regarding survival status as related to age group, gender, diagnoses of dementia, and time period that had elapsed between relocation and death were compared with those from another study conducted by Loretta Anderson (1990) in the same southwest community. Subjects in Anderson's study were relocated to a variety of nursing care facilities following an administrative decision to close an acute care floor in a county nursing home.

In the present study, additional data were collected to examine survival status of relocated subjects and relationship to ethnic background, payment source, mobility status, separation from primary group, room-mate change, open house attendance, family assistance on moving day, and an intrainstitutional relocation two months after the interinstitutional relocation. Frequency distributions and measures of central tendencies and the chi square test of statistical independence were used to analyze the largely nominal data (Nieswiadomy, 1993). A Logistic Regression test was used to determine if a probability of a relationship existed between survival status and models of selected categorical variables (Norusis, 1990).

The questions addressed and analyzed in this study were:

1. What was the survival status over a three and one-half year period by age group and gender for a group of skilled nursing home residents who had been relocated? Frequency distributions and measures of central tendencies were used to calculate survival status. A chi-square test of statistical independence was used to determine if a significant relationship existed between survival status and age groups and gender.

2. Were there significant differences between survival status and (a) ethnic background, (b) payment source, (c) mobility status, and (d) diagnosis of dementia? A Chi-square test of statistical independence was used to determine if a relationship existed. A logistic regression test was used to determine if the probability of a relationship existed between survival status and the multiple variables of gender, mobility status and dementia.

3. Were there significant differences between survival status and (a) separation from primary group, (b) room-mate change, (c) open house attendance, (d) family assistance on moving day, and (e) intrainstitutional relocation? A logistic regression test was used to determine if the probability of a relationship existed between survival status and the multiple variables of (1) open house, mobility status and dementia, and (2) family, gender, mobility status and dementia.

4. Was there a significant difference between the deaths of male and female subjects and time intervals in three month increments during the thirty month period after relocation? Frequency distributions were used to calculate survival status outcomes.

5. How did findings compare to the Anderson Study related to: (a) survival status and gender, (b) survival status and diagnosis of dementia, and (c) time period of death in three month increments over a twelve month period and gender? Frequency distributions and measures of central tendencies were used to calculate comparative findings.

Protection of Human Subjects

This retrospective study posed no risk to residents. Individual residents were not identified on the data collection instrument form. Permission to conduct the study was obtained from the Ethical Review Subcommittee of the College of Nursing, and the Human Subjects Committee of the University of Arizona (Appendix D), after obtaining written permission from the facility's administrator.

Summary

In this chapter an exploratory descriptive study design was presented. Two different collection tools were designed to conduct a retrospective record review. Information was

extracted from medical records and summary sheets compiled by a key staff member involved in both the planning and implementing of the relocation process for a smooth transition with the least amount of trauma possible for the frail elderly being relocated. In this chapter information was presented related to the setting and sample, the method of data collection, the data analysis plan and the protection of human subjects.

CHAPTER 4

PRESENTATION OF DATA

Introduction

In this chapter, the results of the data analysis are presented. The primary purpose of this study was to examine the survival status following an involuntary relocation of 50 elderly skilled nursing care level residents in a southwest community. Findings are presented in relation to characteristics of the sample; survival status by age group and gender; survival status by (a) ethnic background, (b) payment source, (c) mobility status and (d) dementia; survival status by (a) separation from primary group, (b) room-mate change, (c) open house attendance, (d) family assistance on moving day, (e) intrainstitutional relocation; time period of deaths for male and female subjects after relocation; and finally in relation to comparative findings with the Anderson study as related to gender, dementia and time period of death after relocation.

Characteristics of the Study Sample

The characteristics of the study sample are presented in Appendix E, Tables 1 and 2. The sample for this study

(n=45) was selected from a population of 50 elderly residents who were involuntarily relocated from a single story skilled nursing care facility (SNC) to a larger two story SNC facility. The agency's decision to relocate the 50 residents was an administrative one. The agency administrative staff believed that they could facilitate more efficient management of space, staff and financial resources by moving all residents to a larger nursing home. The newer building was able to accommodate all 50 residents from the older facility.

The Anderson study included only subjects 60 and over. In order to keep comparative age related data similar, five subjects under sixty years of age were excluded from the current study sample. As a point of interest, the records showed that this group of excluded subjects included four males and one female, and that one of the males died three months after relocation.

The sample consisted of 25 (56%) male subjects and 20 (44%) female subjects (Figure 3). The highest percentage of subjects by age occurred in the 80-89 age group (36%) for males and 90-99 age group (40%) for females. The mean age of study subjects was 75.56 for males, 86.85 for females, and 80.578 for the total group (Appendix E, Table 1). Thirty-six percent (16) of the subjects were in their eighties, twenty-two percent (10) were in their sixties and

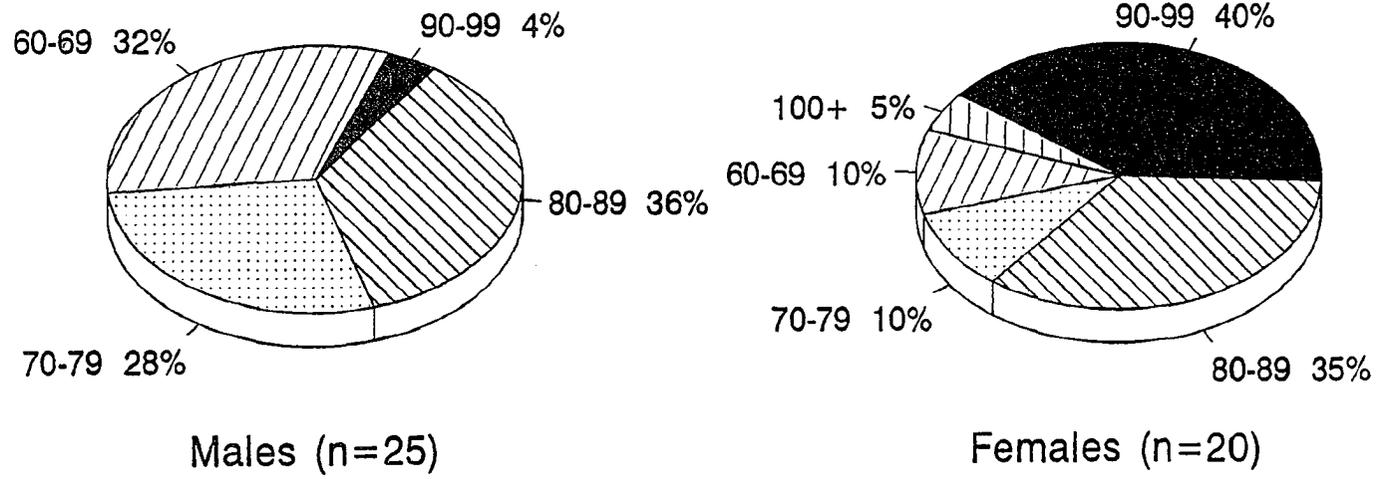


Figure 3. Percentages of Subjects by Gender and Age Group

twenty percent were in their seventies (9) and their nineties (9). The subjects ranged from 60 to 103 years in age.

Forty-one (90%) of the subjects were White non-Hispanic, three (6%) were Hispanic, and two (4%) were African-Americans (Appendix E, Table 2). All 20 female subjects were White non-Hispanic. Twenty-two (49%) study subjects were funded from the private sector, seventeen (38%) were funded by the county and six (13%) were funded by the Veterans Administration (VA). Seventeen (38%) subjects were ambulatory and twenty-eight (62%) subjects were wheelchair bound. No subjects were bedbound. Eleven (44%) male subjects and six (30%) female subjects were ambulatory; fourteen (56%) males and fourteen (70%) females were wheelchair bound. Thirty-six (80%) study subjects had a diagnosis of dementia, of whom twenty-one (84%) were males and fifteen (75%) were females.

Preparations for the relocation included an open house for residents and their family members. Thirty-three (73%) of the residents and their families attended the open house at the new location. Family members were also encouraged to assist the residents with moving their possessions on relocation day. Thirty-two (71%) residents had assistance from a family member with moving their personal belongings from the old facility to the newer modern facility.

Additional considerations for a successful transition to the new location included keeping the group together as a whole in the new location and keeping the same room-mate assignment for as many of the residents as possible. Since each unit in the new facility had fifty beds with some resident occupancy, it required that some residents be separated from the primary group. Eleven (24%) of 45 residents were separated from the group to another floor. Eighteen (40%) of the residents had a room-mate change, nineteen (42%) did not have a change and eight (18%) continued to have a private room in the new location.

An unexpected event at the time of the initial relocation was an intrainstitutional relocation within three months after the interinstitutional relocation. Sixteen (35.6%) residents were relocated to comply with county and federal government regulations.

Mortality data was gathered for a period of three and one-half years (44 months). Twenty eight (62.2%) of the subjects died within 30 months. An equal number of males (14) and females (14) died during this 30 month period. No deaths occurred in the 30 to 44 month period after relocation.

The comparative data for the Anderson Study was obtained from analyzed data presented in chapter 4 of *The Effects of Relocation on Elderly Nursing Home Residents*

(Anderson, pp 48-68). Data used for comparison included findings regarding survival status, age, gender, diagnosis of dementia and time periods of death following relocation.

Analysis of the Data

Data analysis was directed by the research questions as follows:

Question 1. What was the survival status over a three and one half year period by age group and gender for a group of 45 skilled nursing home residents who had been relocated?

During the three and one-half year (44 months) post-relocation interim investigated, 28 (62.2%) of the 45 subjects died within 30 months (Appendix E, Table 3). No one died in the 31 to 44 month period. The highest number of deaths occurred in the 80-89 age group, with a total of 10 (35.7%) deaths. Findings indicated that in the group that died, the highest number of deaths for males (6, 43%) occurred in the 80-89 age group (Figure 4); the highest number of deaths for females (7, 50%) occurred in the 90-99 age group. The second highest number of deaths for males occurred in the 70-79 age group, with a total of 5 (36%) deaths, and the second highest number of deaths for females occurred in the 80-89 age group, with 4 (29%) deaths. For the total group, fifty-six percent (14) of the males died

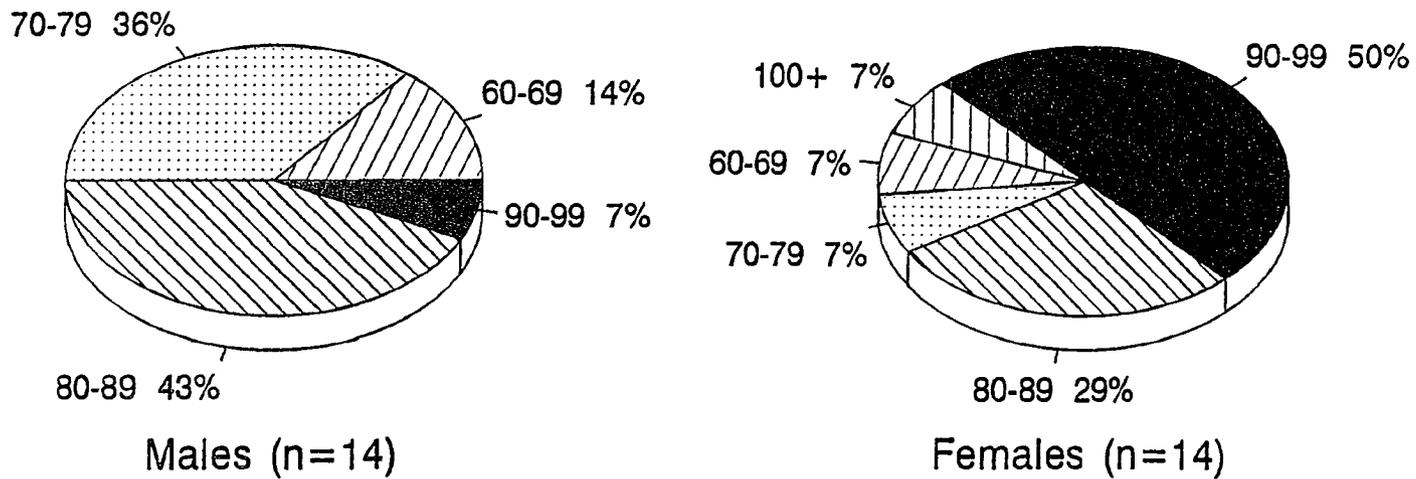


Figure 4. Percentages of Deaths of Subjects by Gender and Age Groups

and seventy percent (14) of the females died (Appendix E, Table 3).

The mean age for subjects who survived was 76.4 years for the sample as a whole, 71.6 years for male subjects and 81 years for female subjects (Appendix E, Table 3). The mean age for subjects who died was 83.9 for the sample as a whole, 78.6 for males and 89.2 for females. Based on Pearson r results, no significance was found between survival status and gender and age groups (Table 1).

Question 2. Were there significant differences between survival status and (a) ethnic background, (b) payment source, (c) mobility status and (d) dementia?

(a) Ethnic background. Twenty six (63.3%) White non-Hispanic subjects and two (66.7%) Hispanic subjects died totaling 28 (62.2%) for the total sample (Appendix E, Table 4). Fifteen (36.3%) White non-Hispanic subjects, one (33.3%) Hispanic, and one (100%) African-American subject lived totaling 17 (37.8%) for the total sample. A Pearson r test was computed (Table 1). Results indicated no significant differences in survival status of subjects by ethnicity.

(b) Payment source. Of the 28 subjects who died sixteen of the 22 (72.7%) subjects funded by a private source died, three (50%) of the six subjects funded by the Veterans Administration (VA) died and nine (52.9%) of the

Table 1. Descriptive Statistics for Survival Status and Selected Study Variables (n=45)

Independent Variable	Pearson r	df	p
Age Groups*	7.82	4	.098
Male Age Groups	4.47	3	.172
Female Age Groups	2.91	4	.573
Gender	.93	1	.336
Ethnic Background**	2.41	3	.493
Payment Source***	2.04	2	.361
Mobility Status****	1.00	1	.317
Diagnosis of Dementia	.21	1	.645
Separation from Group	.37	1	.546
Room-mate Change	.30	2	.859
Open House Attendance	6.33	2	.042
Family Assistance	4.39	1	.036
Intra-Institutional Relocation	1.59	1	.209
Time Period After Relocation *****	9.83	6	.132

Level of Significance < .05

* Age Groups - 60-69; 70-79; 80-89; 90-99; 100+

** Ethnic Background - White non-Hispanic; Hispanic; African-American

*** Payment Source - Private; VA; County

**** Mobility Status - Ambulatory; Wheelchair Bound

***** Time Period - Three month increments over thirty months

seventeen subjects funded by the county died (Appendix E, Table 4). Subjects who lived included six funded from a private source, three funded by the VA and eight funded by the county. Based on Pearson r results, no significant differences were found in survival status between subjects by payment source (Table 1).

(c) Mobility status. Nineteen (67.9%) of the 28 wheelchair bound subjects and nine (52.9%) of the seventeen ambulatory subjects died (Appendix E, Table 4). Findings indicated that six male and two female ambulatory subjects died; five male and four female wheelchair bound subjects lived and nine male and ten female wheelchair bound subjects died (Figure 5). Pearson r statistical results indicated no significant differences in survival status between the ambulatory and wheelchair bound subjects (Table 1). A logistic regression test indicated no significant differences in survival status between age group, gender and mobility status (Table 2).

(d) Dementia. Thirty-six (80%) of the subjects in the study had a diagnosis of dementia. Twenty-three (63.9%) of the 36 subjects with dementia and five (55.6) of the nine subjects without dementia died. Findings related to survival status indicated in the group of subjects with dementia, eight males and five females lived and 13 males and 10 females died; in the group without dementia three

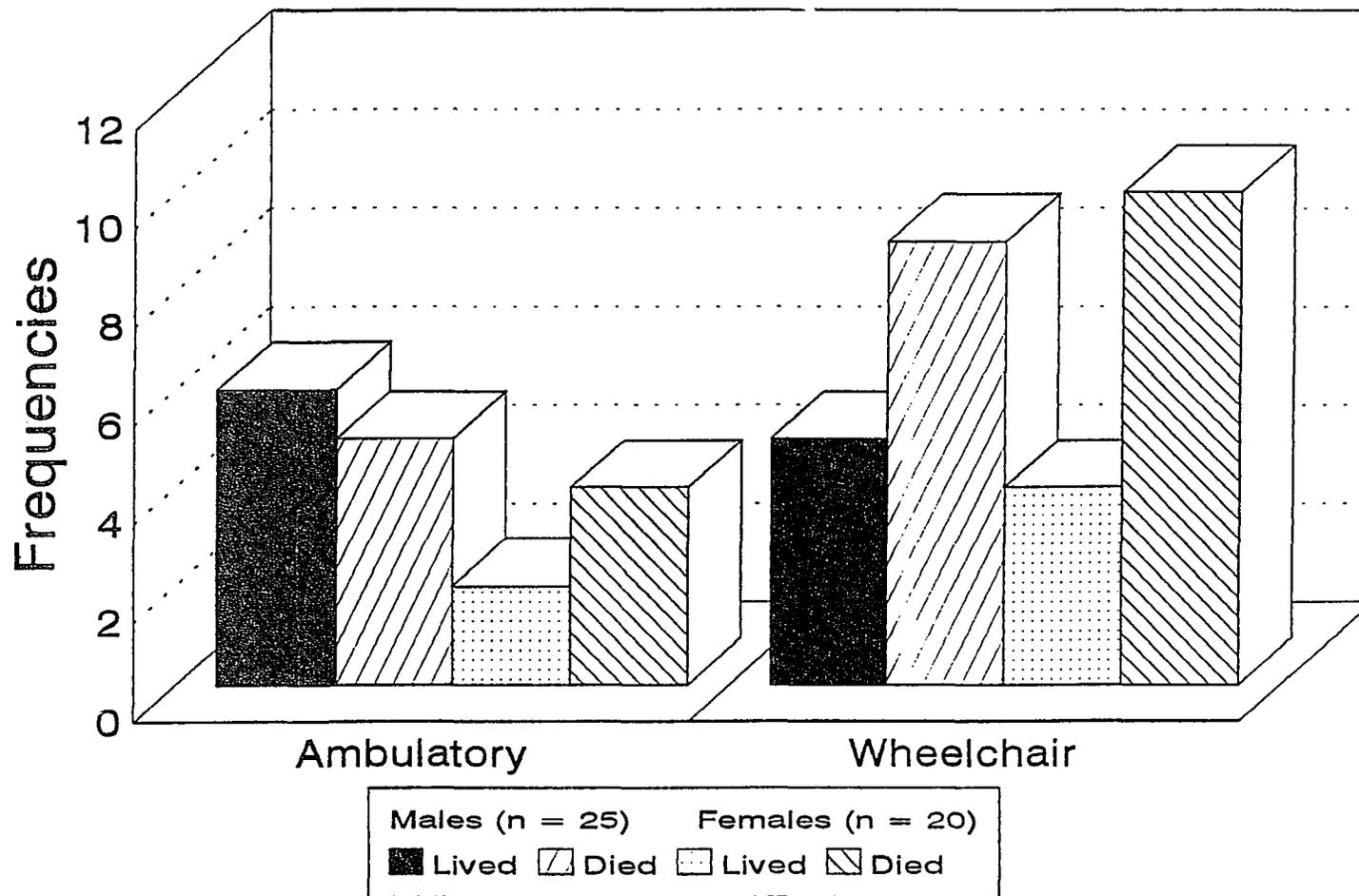


Figure 5. Frequency Distributions of Subjects by Survival Status and Mobility Status

Table 2. Logistic Regression Analysis of Survival Status and Selected Models (n=45)

Model #	Variables Included	Chi-Square	df	p
1	Age Group * Gender Mobility Status **	8.75	6	.188
2	Gender Mobility Status Diagnosis of Dementia	1.88	3	.597
3	Open House Mobility Status Diagnosis of Dementia	6.79	4	.147
4	Family Assistance Gender Mobility Status Diagnosis of Dementia	6.46	4	.167

Level of Significance <.05

* Age Groups - 60-69; 70-79; 80-89; 90-99; 100+
 ** Mobility Status - Ambulatory; Wheelchair Bound

males and one female lived and one male and four females died (Figure 6). A Pearson r statistical test was computed to determine if this high incidence of dementia in this sample was related to survival status (Table 1). No significant differences were found between the group of subjects with dementia and the group without dementia and their survival status. A logistic regression test indicated no significant differences in survival status between gender, mobility, and dementia (Table 2).

Question 3. Were there significant differences between survival status and (a) separation from primary group, (b) room-mate change, (c) open house attendance, (d) family assistance on moving day and (e) intrainstitutional relocation?

(a) Separation from primary group. Twenty-two (64.7%) of the 34 subjects who were not separated from the group and six (54.5%) of the 11 subjects who were separated from the group died (Appendix E, Table 5). A Pearson r statistical test did not demonstrate significant differences in survival status in those who were separated from primary group and those who were not (Table 1).

(b) Room-mate change. Twelve (66.7%) of the 18 subjects who had a room-mate change and eleven (57.9%) of the 19 subjects who did not have a room-mate change died. Of the eight subjects who had private rooms, five (62.5%)

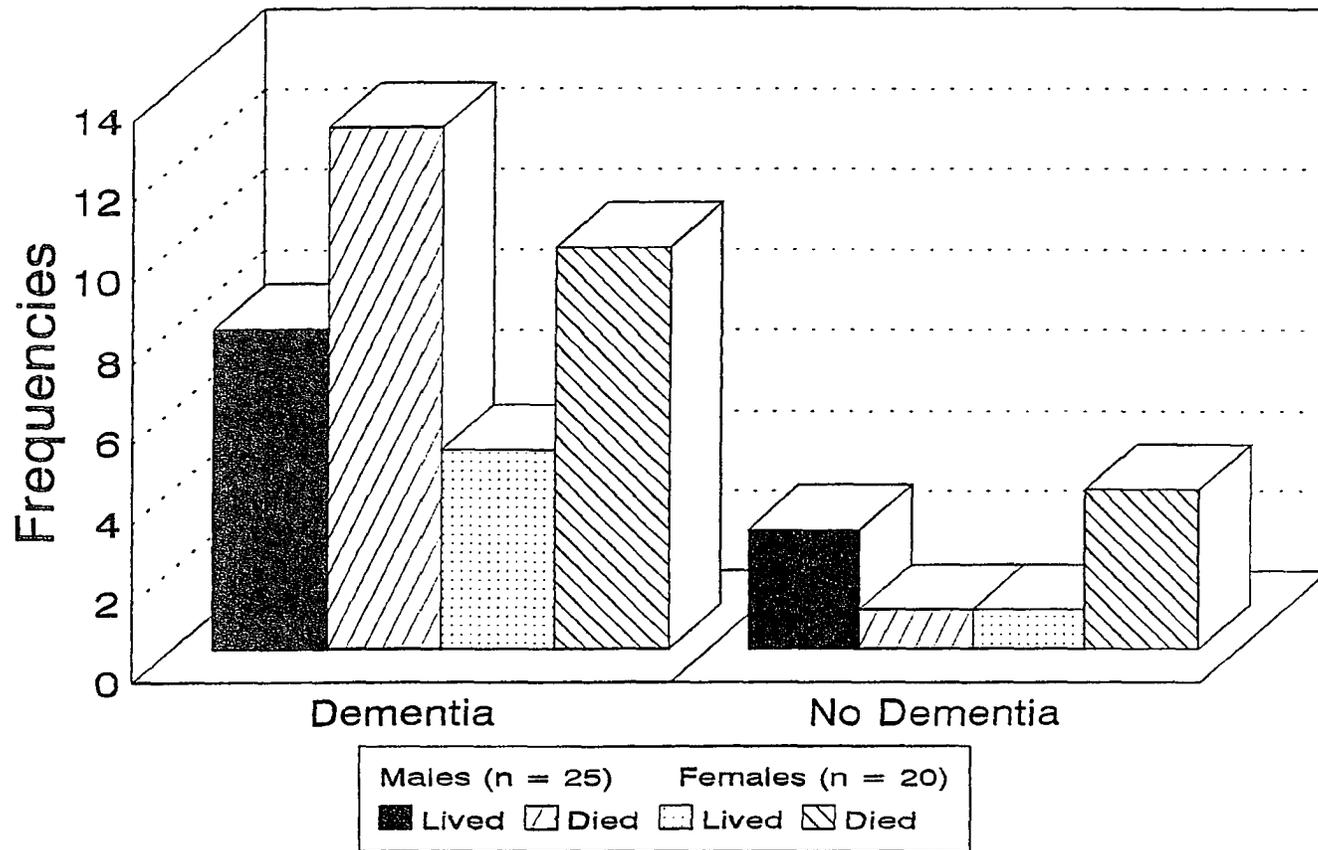


Figure 6. Frequency Distributions of Subjects by Survival Status and Diagnosis of Dementia

subjects died (Appendix E, Table 5). A Pearson r statistical test did not indicate significant differences in survival status between the subject group who had room-mate changes, the group who did not have room-mate changes and the group who had private rooms (Table 1).

(c) Open house attendance. Twenty four (72.7%) of the 33 subjects who attended the open house and four (36.4%) of the 11 subjects who did not attend died. A higher percentage of subjects who attended the open house died than those who did not (Appendix E, Table 5). A Pearson r test computed a statistically significant difference ($p = .042$, 2 df) in survival status between subjects who attended the open house and those who did not (Table 1). A logistic regression analysis did not demonstrate a significant relationship between survival status and the following selected variables - open house, mobility status, and dementia (Table 2).

(d) Family assistance. Twenty three (71.9%) of the 32 subjects who had family assistance with relocation of their personal belongings to the newer nursing home died and five (38.5%) of the 13 subjects who did not have assistance died (Appendix E, Table 5). A Pearson r test computed a statistically significant difference ($p = .036$, 1 df) in survival status between subjects who had family assistance with relocation and those who did not (Table 1). A logistic

regression analysis did not demonstrate a significant relationship between survival status and the following selected variables - family assistance, gender, mobility status, and dementia (Table 2).

(e) Intrainstitutional relocation. The number of subjects who died included eight (50%) of the 16 subjects who were intrainstitutionally relocated within three months of the interinstitutional relocation and 20 (69%) of the 29 subjects who were not relocated (Appendix E, Table 5). A Pearson r statistical test indicated no significant differences in survival status between subjects who were relocated and those who were not (Table 1).

Question 4. Was there a significant difference between the deaths of male and female subjects and time intervals in three month increments during the thirty month period after relocation?

During the first three months six (42.9%) of the 25 male subjects and two (14.3%) of the 20 female subjects died; within six months five (35.7%) more male subjects and three (21.4%) more female subjects died. Within nine months, thirteen (92.6%) of the fourteen male subjects died and six (42.8%) of the fourteen female subjects had died (Appendix E, Table 6). The deaths for female subjects numbered 1-3 per three month increment throughout the 30 month time period while all but one death for males occurred

in the first nine months after relocation (Figure 7). Although clinical differences for males and females occurred at different time periods post-relocation, statistical significance was not reached due to small sample size (Table 1). A likelihood ratio test computed a statistically significant difference ($p=.04908$, 6 df), but a Pearson χ^2 test did not compute a statistically significant difference ($p=.13185$, 6 df) in survival status between males and females in time intervals of three month increments over 30 month period post relocation.

Question 5. How did findings compare to the Anderson Study related to: (a) survival status and gender, (b) survival status and diagnosis of dementia and (c) time period of death in three month increments over a twelve month period and gender?

(a) Survival status and gender. The current study included 25 (56%) males and 20 (44%) females and the Anderson study included 13 (17%) males and 64 (83%) females (Appendix E, Table 7). The mean ages for subjects in this study were 76 years for males and 87 years for females; the mean ages for subjects in the Anderson study were 80 years for males and 83 years for females.

Twenty (44%) subjects from this study compared to thirty-one (40%) subjects from the Anderson study died within twelve months after relocation. Eight (40%) female

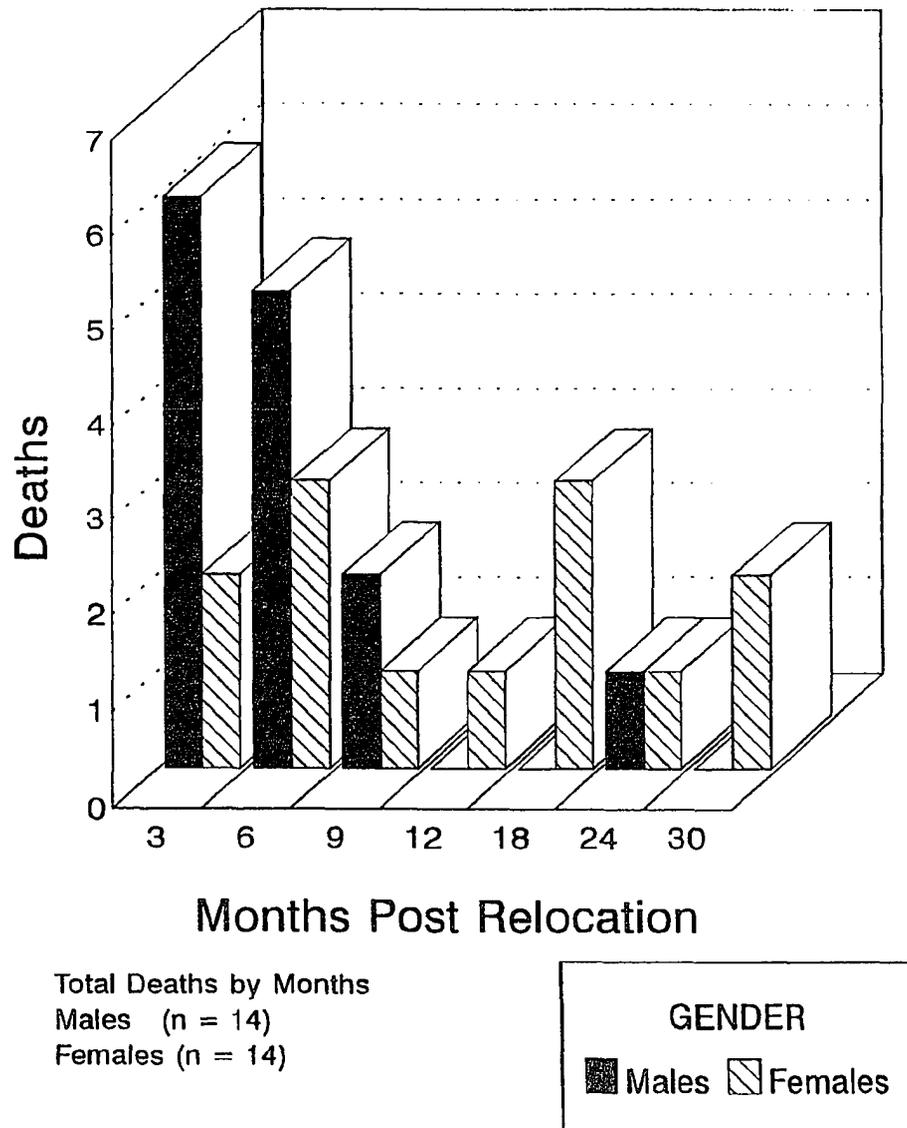


Figure 7. Frequency Distributions of Deaths of Males and Females by Months Post-Relocation

subjects from this study and twenty-seven (42%) female subjects from the Anderson study died; twelve (48%) male subjects from this study and four (31%) subjects from the Anderson study died. Female subjects in this study were slightly older (87 years compared to 81 years), but had a lower death rate (40%) compared to the death rate (42%) of the Anderson study. Males from this study were younger (76 years) than males from Anderson study (80 years), but had a higher death rate (48%) than males from Anderson study (31%).

(b) Survival status and diagnosis of dementia. This study included 36 (80%) subjects with a diagnosis of dementia and nine (20%) without a diagnosis of dementia; The Anderson study included 42 (55%) subjects with a diagnosis of dementia and 35 (45%) subjects without a diagnosis of dementia (Appendix E, Table 8). The number of subjects who died over a twelve month period for subjects with a diagnosis of dementia was 44% (16) for this study and 58% (18) for the Anderson study.

(c) Time period of death in three month increments over a twelve month period and gender. Seven (35%) of the 20 subjects who died in this study died in the first three months compared to seventeen (55%) of the 31 subjects who died in the Anderson study during the first three months (Appendix E, Table 9). Eight (40%) subjects from this study

and eight (10%) subjects from the Anderson study died in the second three month period; three (15%) subjects from this study and three (10%) subjects from Anderson's Study died in the third three month period; and two (10%) subjects from this study and eight (25%) subjects from Anderson's study in the fourth three month time period. Eighty three percent (10) of the males in this study died in the first six months compare to 100 percent (4) of the males in Anderson's study. Twenty five percent (2) of female subjects who died from this study and 51.9 percent (14) of females who died in Anderson died in the first three month period (Figure 8). The highest number of deaths for this study occurred in the second three month period with the death of three female subjects. In both studies, both male and female subjects had the highest frequency of deaths in the first 6 months of the twelve month period.

Summary

The findings for this study of 45 elderly skilled nursing level residents who were relocated reflected that 28 (62.2%) subjects of the sample died within 30 months after relocation. Of the 28 subjects who died, 20 (74.9%) died within the first year; fifteen (57.2%) subjects died within the first six months.

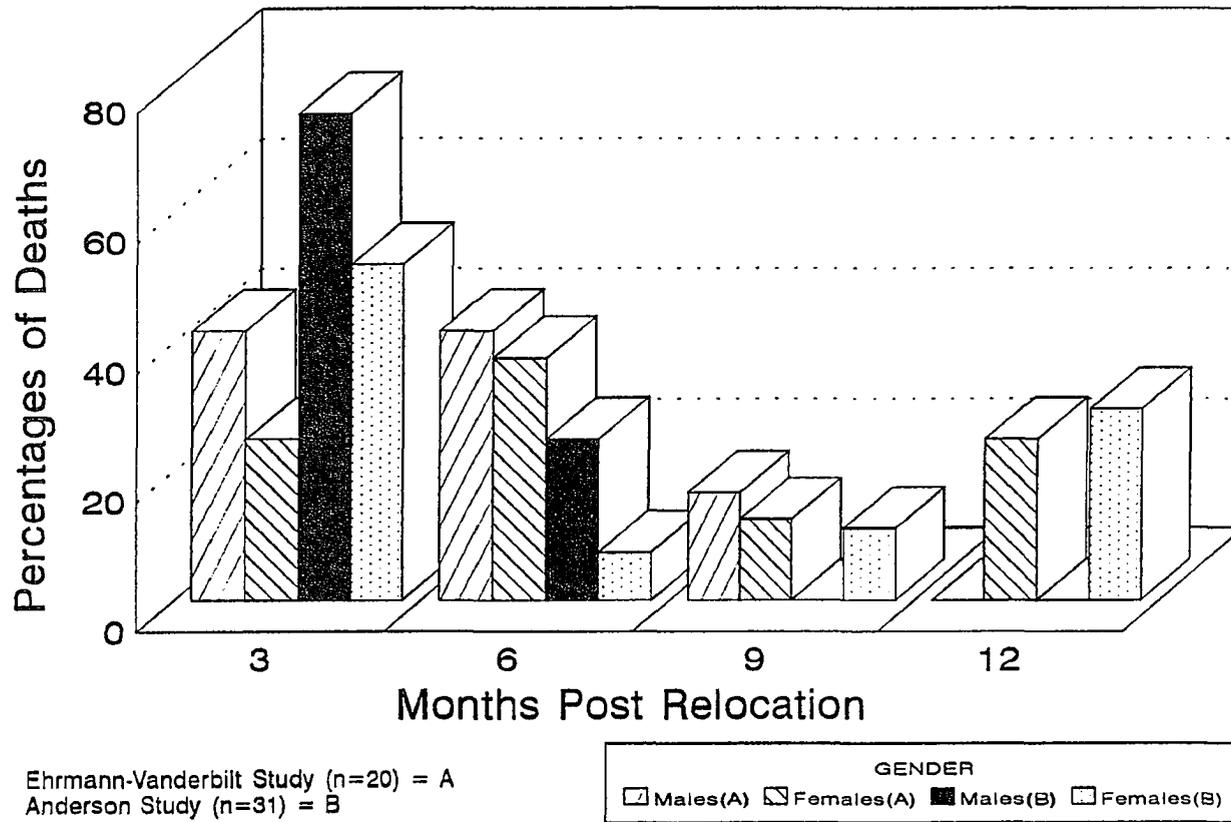


Figure 8. Percentages of Deaths of Male and Female Subjects by Three-Month Increments for Ehrmann-Vanderbilt Study and Anderson Study

Frequency of mortality differed for males and females by age group. The highest number of deaths for males occurred in the 80-89 age group. The highest number of deaths for females occurred in the 90-99 age group. The mean age of death for males and females also differed. The mean age for males who died was 75.56 years and for females was 86.85 years.

Findings, using a chi-square analysis for examining survival status in relation to ethnic background, payment source, mobility status and dementia, did not reflect a statistically significant difference (Table 1). Analyses related to survival status and separation from the group, a room-mate change and an intrainstitutional relocation, did not reflect a statistically significant difference. However examination of survival status in relation to open house attendance and family assistance resulted in statistically significant differences suggesting that subjects who did not have family assistance with moving and who did not participate had a higher survival rate than subjects who did.

The time periods for deaths of males and females varied significantly. Male subjects died at a significantly higher rate in the earlier months following relocation, with thirteen (92.6%) of the 14 male subjects who died dying within nine months after relocation. The deaths for female

subjects numbered 1-3 deaths per three month increment throughout the 30 month time period after relocation.

Comparative findings between this study and the Anderson study indicated minimal differences in the survival status with 44% of subjects in this study dying and 40% of subjects dying in Anderson's study. A much higher incidence of dementia existed in this study (80%) compared with subjects in Anderson's study (55%). The male-female ratio between this study and Anderson's study differed considerably. This study consisted of 25 (56%) males and 20 (40%) females and Anderson's study consisted of 13 (17%) males and 64 (83%) females. The mean ages for each group also differed. The mean age for subjects from this study was 76 years for males and 87 years for females and in the Anderson study was 80 years for males and 83 years for females.

CHAPTER 5
DISCUSSIONS, CONCLUSIONS AND RECOMENDATIONS

Introduction

The purpose of this study was to examine the survival status of 45 elderly skilled nursing care level residents over a three and one-half year time period following an involuntary interinstitutional relocation. In this chapter, findings related to the research questions are discussed. Conclusions, limitations of this study, recommendations for further nursing research, and the significance of this study to nursing are presented.

Discussion of Findings

The results of this study are discussed in relation to the conceptual framework and the research questions that guided the study. The discussion will focus on those variables identified as focal stimuli (the confronting stimulus that demands adaptation) and contextual stimuli (known contributing factors that influence adaptation) involving the sample of 45 subjects, and the outcome response defined as survival status, more specifically survival or death. The relocation events - group

separation, room-mate change, open house attendance, family assistance and intrainstitutional relocation have been identified as focal stimuli. The subject characteristics - age, gender, ethnic background, payment status, mobility status, and diagnosis of dementia, have been identified as contextual stimuli.

Characteristics

Demographic characteristics of the sample differed from those described by gerontological researchers as characteristic of the nursing home population. The mean age of 81 years for this sample was slightly lower than the mean age of 84 years reported by Harper and Lebowitz (1986) as the mean age for the nursing home population in their study.

It is also slightly lower than the mean age of 83 for subjects in the Anderson Study (1990). The mean age of subjects in the current study may have been skewed by the relatively large number of subjects (10, 22%) under 70 years of age who may not be reflective of the average nursing home population. Another factor that may have skewed the mean age may have been that males represented 56% of the sample, with 60% of those under under the age of 80 years.

The male-female ratio also differed from findings reported in the literature. Eliopolous (1993) cites a female to male ratio of 3:1 for the over 65 age group. The

female to male ratio in this sample was 4:5 with a larger number of males than females. The seven residents funded by the Veterans Administration (VA) were all males because the VA serves a predominantly male population from the over sixty age group. The inclusion of VA supported subjects may have skewed the male-female ratio somewhat. However, even without these VA subjects, the male ratio was disproportionately high in comparison to the gender ratio of nursing home residents presented in the literature. Brody and Foley (1985) reported the female nursing home population increased from 65% in 1963 to 71% in 1977. One study by Thomasma et al. (1990), examining relocation anxiety among elderly subjects, reported a sample of 72 with 69 (95.8%) females. The Anderson study in the same southwest community included 64 (83%) women in the sample of 77 subjects.

Matteson and McConnell (1988) reported the nursing home population as being predominantly White non-Hispanic (92%) with six percent of the residents African-American and one percent Hispanic. In this study ninety percent of the residents were White, four percent were African-American, and six percent were Hispanic. Although the sample is too small to generalize, the predominant number of White non-Hispanic subjects is reflective of literature findings. The higher percent of Hispanic subjects is probably reflective

of the southwestern border location of the nursing home that served as the study setting.

The payment source for the nursing home sample was largely from the private sector with 22 (49%) subjects obtaining funds from private sources. The county provided funds for 17 (38%) subjects and the remaining 13% were VA supported. Although search of the relocation literature did not reflect demographic findings regarding payment source, Kasl (1972) reported that poor financial conditions increased the vulnerability for morbidity and mortality.

Twenty-eight (62%) of the subjects in this study were wheelchair bound. This was slightly higher percentage than reported by Borup et al. (1979), in which 41% of the study sample of 982 subjects were wheelchair bound. In the current study 62% of female subjects compared with 39% of subjects in the Borup study were confined to wheelchairs; 56% of the males in the current study and 45% of the males in the Borup study were confined to wheelchairs. The subjects from the current study were considerably more impaired as a group which suggests the potential for increased vulnerability. Killian (1970) found the highest mortality rate among the nonambulatory subjects of 600 subjects involuntarily relocated.

The number of subjects diagnosed with dementia (80%) was considerably higher than Kramer's (1983) statement

suggesting that, "50 - 60% of nursing home residents suffer from some kind of mental disorder...actual distribution unknown" (Harper & Lebowitz, 1986, 309). Males in the current study had a higher incidence of dementia (84%) than females (75%). Rabin (1987) reported that 16% of the institutionalized elderly clients over the age of 65 have a diagnosis of some form of dementia. The large number of subjects with dementia in this study may be associated with a changing profile of the nursing home population.

In summary, of the female subjects in this study, 80% were over 80 years of age, 70% were wheelchair bound and 75% had a diagnosis of dementia. Females composed 44% of the sample. Of the male subjects in this study, 60% were under 80 years of age, 56% were wheelchair bound and 84% had a diagnosis of dementia. Males outnumbered females 5 to 4 and made up 56% of subjects. The demographic profile of the subjects in this study was different from those presented in relocation studies found in the literature. Findings would suggest that the subjects in this study, who were involuntarily relocated, were a highly vulnerable group for increased morbidity and mortality.

Research Questions

Questions number one and two will be discussed as contextual variables as presented in the framework for the

relocation study (Figure 2). Question number three will be discussed as a focal variable. Question number four will be discussed in terms of physiological function as an effector related to survival status. Question number five will be discussed in comparison to the outcome of the Anderson study.

Contextual Stimuli

The literature reports a wide variety of mortality rates associated with the relocation of elderly subjects one year after relocation. Pruchno & Resch (1988) found that the percentage of subjects who died one year after relocation ranged from two percent to 18% in their studies. Gutman & Herbert (1976) found that 33.33% of the subjects died in one year. Davis et al. (1990) found that 16% of the subjects died within one year after relocation. Kohut, et al. (1979) reported that 65% of all elderly subjects moving from one nursing home to another died within six months. Compared to most of these findings the mortality rate of 44% was high at the end of one year. The rate was 62.2% at the end of three and one half years.

Age and Gender

The survival status for males and females differed by age. The mean age for females who died was 89.2 years compared to 78.9 years for males. Gerontologists (Killian, 1970; Goldfarb et al., 1972; Bourestom & Pastalan, 1981;

Kasl, 1972) report that subjects who are older are most vulnerable for mortality. Ebersole and Hess (1985) report that 40% of residents in nursing homes are over 85 years of age. In this study 44% of the subjects were over 85 years of age. A higher percentage of the females died; however they also made up 80% (16) of the over 85 years of age group. In this group of 16 females over 85 years, 12 (75%) female subjects died and four (25%) lived. The number of male subjects over 85 years of age was much smaller, with a total of four (16%); of the four, two (50%) died and two (50%) lived. The higher number of female deaths may be attributed to increased age of the group. The wear and tear theory explains that organisms "wear out" from increased metabolic functioning and that cells become exhausted from continued energy depletion in adapting to stressors (Schuster & Ashburn, 1986). In this study the stressor, relocation, may have been in excess of the energy available to maintain the integrity of the organism.

Researchers disagreed on whether males were more vulnerable or whether females were more vulnerable when relocated. Haddad (1981) reported that in a group of elderly psychiatric patients relocated there were consistently more deaths among males than females. He also reported that the female death rate among the relocated group was lower than the non relocated control group.

Bourestom and Pastalan (1981) reported opposite findings: that those most vulnerable were females who were older and who had serious cognition and medical impairments. A chi-square test of independence did not indicate a significant difference between survival status and age in the male and female groups. However, considering that 60% of male subjects were under 80 years of age and that 80% of female subjects were over 80 years of age, one can speculate that gender played a role in the deaths of males and age played a role in the deaths of females. Males who died were younger by an average of 10.3 years, suggesting greater vulnerability in this predominantly male sample. The percentage of male deaths in this study was 56% compared with 70% for the female subjects.

Ethnicity/Payment Status

The statistical results regarding survival status and ethnicity were insignificant. Statistical findings between survival status and payment source were also insignificant. Subjects who were supported by the county did not receive a different level of skilled care than did subjects who were funded by a private source. County supported subjects were not impacted in the same way as those identified by Kasl(1972) as being at increased risk for mortality due to poor financial conditions. In other words county supported subjects did not experience impoverished care that

potentially influenced the regulator-cognator mechanism and resulted in an eventual change in the physiological response that negatively affected survival status.

Mobility Status

Researchers have consistently identified functional status as a predictor of morbidity and mortality (Beaver, 1979; Goldfarb et al., 1972; Bourestom & Pastalan, 1981;). Mobility status is a component of functional status. Although a chi-square test of independence and a logistic regression that examined the relationship of survival status and age group, gender and mobility status were not statistically significant, a higher percentage of wheelchair bound subjects (62.2%) than ambulatory subjects (52.9%) died. The large number of subjects confined to wheelchairs may suggest that these subjects were a highly vulnerable group, and the increased vulnerability may have accounted for the higher than average number of deaths that occurred among wheelchair bound subjects.

One cannot conclude that mobility status in this study was an influencing variable for outcome, since the only measurement regarding mobility status was a yes or no response to being confined in a wheelchair. The yes or no responses gave no indication of the degree of functional impairment. Findings regarding mobility status cannot

support a conclusion that the functional status of the subjects was related to the survival status outcome.

Dementia

Blenkner (1967), in a review of the relocation studies, stated that dementia emerged as the one unequivocal indicator of high risk in relocation situations. Markus et al. (1970) reported that persons with severe cognitive dysfunction had significantly higher death rates six months following relocation than did other relocated residents. In the current study, the number of subjects (36, 80%) with a diagnosis of dementia was 20 to 30 percent higher than reported in the literature and would place these subjects in a high risk group. The male subjects would be at particularly high risk for mortality, as 84% of the dementia group were males. Fifty-seven percent of the subjects with dementia who died did so within six months. These findings are consistent with literature findings.

None of the variables identified as contextual stimuli demonstrated a statistically significant relationship to survival status. Although age, gender, mobility status and dementia have all been cited in the literature as variables that impact on the survival status of elderly subjects being relocated, none was statistically significant. No findings emerged that supported the conclusion that any of these

variables may have influenced the regulator-cognator mechanism and impacted on the physiological effector.

Focal Stimuli

Two of the five relocation events were planned events to help mitigate the stress associated with the involuntary relocation. These two events were (1) plans for an open house at the new nursing home for residents and their families three months prior to the relocation and (2) plans for family members to assist residents with moving on relocation day. Investigators have reported vastly reduced mortality rates when relocation preparation programs were implemented (Bourestom, 1984; Grey, 1978; Pastalan 1976). Relocation plans that included repeated site visits were cited as being most effective in reducing mortality rates. Close primary relationships were also associated with successful adjustment to relocation (Wells & McDonald, 1981).

The results in this study did not support previous findings cited in the literature. These two relocation events were the only events of the five events examined that were statistically significant in relation to survival status; however, the findings were opposite to that which was expected. Subjects who did not attend the open house and subjects who did not have family support on moving day

survived in proportionately larger numbers than those who attended the open house and had family support. Turner et al. (1972) found that individuals who adapted best to an institutional environment were characterized as being intrusive, aggressively relating and insisting on responsiveness from others. Lieberman (1961) found that those subjects characterized by anger and aggression were linked with a greater chance of survival. One could speculate that resistance to planned events by not attending could be characteristic of this survivor profile. One could also speculate that the survivors may not have had available family and may have established primary relationships with nursing home staff. No firm conclusions can be drawn from these findings based on available data.

The non-significant findings regarding room-mate change, separation from the primary group, and an intrainstitutional relocation were not expected. These subjects were considered high risk for death based on literature findings regarding involuntary relocation and mortality outcomes. Chi-square tests of independence indicated no significant difference in relation to survival status in subjects who had roommate changes, were separated from their primary group or who were intrainstitutionally relocated. One can conclude that these three events, did not significantly influence the survival status of relocated

subjects in this study, and that the high incidence of mortality may be more related to other factors.

Relocation Time Period

The results indicating a high incidence of deaths in the first three months after relocation is reflective of literature findings. Lieberman (1974) asserted that during the tenuous first year after relocation, the first three months had the highest mortality rate. This finding was true for males in the current study but not true for females. Six (42.9%) males died in this first three month time period. The highest number of deaths (3, 21.4%) for females occurred at six months and 18 months after relocation. Although the mean age was much higher for females (86.85) than males (75.56) the survival status remained higher during the first twelve months.

Comparative Data

Comparative findings regarding survival status at twelve months were similar in both studies. Twenty (44%) of 45 subjects died in this study and 31 (40%) of 77 subjects died in the Anderson study. In both studies, both male and females had the highest frequency of deaths in the first 6 months of the twelve month period. This study sample had a disproportionately high number of male subjects compared to

the Anderson study. Although the males in this study were younger as a group with a lower average mean age, a higher percentage of male subjects died from this group than from the Anderson group. The females in this study were older than those in the Anderson study, but the percentage of female deaths that occurred within the first twelve months was lower.

A much higher rate of dementia existed among subjects in this study than in the Anderson study. Dementia is identified by several researchers as an indicator of high risk for mortality. The female subjects in this study had a fewer deaths although the percent of females with dementia was higher than in the Anderson study. Based on literature findings related to dementia and mortality status, it could be expected that more females would have died in this study than in the Anderson study (Beaver 1979; Lieberman, 1974; Blenkner, 1967; Markus et al., 1970; Bourestom & Pastalan, 1981). However this was not the case in this study.

Conclusions

A statistically significant relationships was found between survival status, and family support and participation in relocation planning event. A higher percentage of subjects who attended the open house and who had family support on moving day, died than those who did

not attend the open house or had family support. This was opposite of the expected direction.

A statistically significant relationship was found between time intervals of post relocation deaths of males and females over 30 months in three month increments. Of the 14 males who died, 13 died in the first nine months; of the 14 females who died six died in the first nine months.

There was no statistically significant relationship found between survival status and a diagnosis of dementia. Although a much higher incidence of dementia was found among the subjects in the current study, the number of deaths that occurred was not significantly higher among the group with dementia.

No statistically significant relationships were found between survival status, and age, gender and mobility status. Fifty-six percent of the males died and 44% of the females died. A higher percent of wheelchair bound subjects (62.2%) than ambulatory subjects (52.9%) died.

The Anderson study findings were similar in relation to number of deaths and time period of death for males and females. The time periods of death after relocation for males is similar to findings in the Anderson study. The higher incidence of dementia in this study did not result in a higher incidence of death.

Limitations

The limitations for this study were as follows:

1. Raw data for the Anderson study were not available for exact comparison, therefore, findings are limited by use of data previously analyzed.

2. Small convenience sample limits generalizability to other relocation events or populations.

Recommendations for Further Research

A need exists for ongoing research that examines the functional level of residents relocated to nursing homes. Functional level assessments need to include information related to the physical status as well as the psychosocial and spiritual status. Research studies consistently report mortality rate for subjects are the highest in the first three months post relocation; therefore, comprehensive functional assessments must be completed prior to the relocation, at the time of relocation and periodically thereafter, if relationships between functional status and relocation survival status are to be empirically established. For example, assessments could be completed at one month, three months, six months, nine months and at one year intervals. A Physical Profile scale is suitable for ongoing measurements. One such scale PULSES assesses the following six areas of function: P-physical condition,

U-upper extremity function, L-lower extremity function, S-sensory function, E-excretory function, and S-mental/emotional status (Maskowitz, 1957). In addition to these six areas, functional assessment could incorporate the contextual characteristics that each relocated client brings to the setting, particularly the mental/emotional status.

In light of the findings in this study, further research is recommended examining the relationship between survival status, and the availability of family support and participation in planning events. Further study is also recommended regarding the relationship between survival status and specific types of diagnosis of dementia to relocation outcomes, since the findings in this study did not support literature findings.

Significance of this Study to Nursing

By comparing findings of the two studies, additional data about relocation of the elderly have contributed to the body of knowledge. Findings from this study have implications for delivering quality nursing care. Findings suggest that survival status of subjects may not be related to participation in scheduled events that traditionally have been thought to mitigate stress. Survival status is the outcome response of incoming stimuli that is the sum total of all of life's events, some of which are not understood,

or even identified, at any given time. Elderly individuals bring personal survival skills that have been shaped by their many life experiences. These survival skills can facilitate the adaptation process that influences the regulator-cognator mechanism that ultimately may affect survival status.

Summary

In this chapter, the significant findings related to the research questions were discussed. The discussion included the characteristics of the sample and their associations with survival responses to relocation events. Findings were also discussed in relation to results of other gerontological studies. Conclusions, limitations of the study, recommendations for further research, and the significance of this study to nursing were presented.

APPENDIX A

DATA COLLECTION FORM FOR RELOCATION

DATA COLLECTION FORM FOR RELOCATION STUDY

Subject Identification No. _____
 Age _____ Race _____ Sex _____
 Length of Stay at Nursing Home _____
 Payment Source: Private _____ VA _____ County _____
 Diagnosis _____

Episodic Events Post-Relocation: _____

Medications Pre-Relocation: _____

Medication Changes Post-Relocation: _____

VITALS/WEIGHTS

Relocation Status	B/P	TEMP	PULSE	RESP	Wt.
Time I (Sept)					
Time II (Oct)					
Time III (Adm)					
Time IV (2 wks)					
Time V (4 wks)					

APPENDIX B

DATA COLLECTION FORM FOR RELOCATION, REVISED

DATA COLLECTION FORM FOR RELOCATION STUDY
(Revised after relocation to gather additional data
that seemed pertinent to the relocation study.)

Subject Identification No. _____

D.O.B _____ D.O.D. _____

Age If Living May 18, 1992 _____

Gender _____ Ethnic Background _____

Nursing Home Admission Date _____ Discharge Date _____

Payment Source: Private _____ VA _____ County _____

Mobility Status: Ambulatory _____ Wheelchair _____ Bedbound _____

Attended Open House at new residence 8/15-17/88: Yes _____ No _____

Family Helped Move on Moving Day: Yes _____ No _____

Informed of Move: August 9, 1988 _____ Day Before Moving Date _____

Moving day: 1st Day _____ 2nd Day _____

Separated From Larger Group to Another Floor: Yes _____ NO _____

Same Room-mate at New Location: Yes _____ No _____

Private Room at Old Location: Yes _____ No _____

Private Room at New Location: Yes _____ No _____

Same Primary Caregiver at New Location: Yes _____ No _____

Intra-institutional Relocation(s): 1/10/89 _____ Other _____

Diagnosis _____

Number of Diagnoses: _____

Episodic Events Occurring During The First Three Months Post
Relocation: _____

Number of Episodic Events: _____

APPENDIX C

NURSING HOME APPROVAL LETTER

Park Villa Convalescent Center

2001 North Park Avenue • Tucson, Arizona 85719
(602) 882-6151
T.D.D. 882-6151
FAX (602) 882-2970

May 18, 1992

Irine Ehrmann-Vanderbilt
4410 Ironwood Hill Dr.
Tucson, AZ 85745
(602)743-0064

Dear Ms. Ehrmann-Vanderbilt:

We have reviewed your request for access to chart data to investigate the effects on our elderly clients involved in an interinstitutional relocation during the month of October, 1988. We have approved the request with the understanding that you arrange an appointment in advance with the medical records department.

Information to be released will be limited to the data identified on the Data Collection Form for Relocation Study.

Sincerely,



Fran Bender-Colassaco, Administrator
Park Villa Convalescent Center
2001 N. Park Avenue
Tucson, AZ 85719
(602)882-6151

APPENDIX D

HUMAN SUBJECTS APPROVAL

College of Nursing

Tucson, Arizona 85721
(602) 626-6154

MEMORANDUM

TO: Irine Ehrmann-Vanderbilt

FROM: Leanna Crosby, D.N.Sc., R.N. Director of Intramural Research *Leanna Crosby*

DATE: May 10, 1992

SUBJECT: Human Subjects Review: "The Effects of Relocation on Elderly Nursing Home Residents"

Your research project has been reviewed and approved by William Denny, M.D., Chairman of the University of Arizona Human Subjects Committee, and deemed to be exempt from review by their full committee. You will be receiving a confirmation letter from Dr. Denny. In addition, your project has been reviewed and approved by the College of Nursing Human Subjects Review Committee.

We wish you a valuable and stimulating experience with your research.

LC/ga

APPENDIX E

STATISTICAL RESULTS TABLES

Table 1. Frequency Distributions of Subjects by Age Groups and Gender (n=45)

Age Groups	Males		Females		Total	
	#	%	#	%	#	%
60-69	8	18	2	4	10	22
70-79	7	16	2	4	9	20
80-89	9	20	7	16	16	36
90-99	1	2	8	18	9	20
100+	0	0	1	2	1	2
TOTAL	25	56	20	44	45	100
X Age	75.56		86.85		80.578	

Table 2. Frequency Distributions of Subjects by Gender and (a) Ethnic Background, (b) Payment Source, (c) Mobility Status and (d) Diagnosis of Dementia (n=45).

Study Subject Characteristics	Males		Females		Total	
	#	%	#	%	#	%
Ethnic Background						
White Non-Hispanic	21	47	20	44	41	91
White Hispanic	3	7	0	0	3	7
African American	1	2	0	0	1	2
Payment Source						
Private	11	24	11	24	22	49
VA	6	13	0	0	6	13
County	8	18	9	20	17	38
Mobility Status						
Ambulatory	11	44	6	30	17	38
Wheelchair	14	56	14	70	28	62
Bedbound						
Dementia						
Yes	21	84	15	75	36	80
No	4	15	5	25	9	20
TOTAL	25	56	20	44	45	100

Table 3. Frequency Distributions of Subjects by Survival Status and Age Groups (n=45).

Age Groups	Males (n=25)				Females (n=20)				Total (n=45)			
	Lived		Died		Lived		Died		Lived		Died	
	#	%	#	%	#	%	#	%	#	%	#	%
60-69	6	24	2	8	1	5	1	5	7	41.2	3	10.7
70-79	2	8	5	20	1	5	1	5	3	17.6	6	21.4
80-89	3	12	6	24	3	15	4	20	6	35.3	10	35.7
90-99	0	0	1	4	1	5	7	35	1	5.9	8	28.6
100+	0	0	0	0	0	0	1	5	0	0.0	1	3.6
TOTAL	11	44	14	56	6	30	14	70	17	37.8	28	62.2
\bar{X} Age	71.6		78.6		81		89.2		76.4		83.9	

Table 4. Frequency Distributions of Subjects by Survival Status and (a) Ethnic Background, (b) Payment Source, (c) Mobility Status and (d) Dementia (n=45).

	Lived		Died		Totals	
	#	%	#	%	#	%
Ethnic Background						
White Non-Hispanic	15	36.6	26	63.4	41	91.1
White Hispanic	1	33.3	2	66.7	3	6.7
African American	1	100.0	0	0	1	2.2
Payment Source						
Private	6	27.3	16	72.7	22	48.9
VA	3	50	3	50	6	13.3
County	8	47.1	9	52.9	17	37.8
Mobility Status						
Ambulatory	8	47.1	9	52.9	17	37.8
Wheelchair	9	32.1	19	67.9	28	62.2
Bedbound	0	00.0	0	00.0	0	00.0
Dementia						
No	4	44.4	5	55.6	9	20
Yes	13	36.1	23	63.9	36	80
TOTALS	17	37.8	28	62.2	45	100

Table 5. Frequency Distributions of Subjects by Survival Status and (a) Separation from Primary Group, (b) Room-mate Change, (c) Open House Attendance, (d) Family Assistance on Moving Day and (e) Intrainstitutional Relocation (n=45).

	Lived		Died		Totals	
	#	%	#	%	#	%
Group Separation						
Yes	5	45.5	6	54.5	11	24.4
No	12	35.3	22	64.7	34	75.6
Room-mate Change						
Yes	6	33.3	12	66.7	18	40.0
No	8	42.1	11	57.9	19	42.2
Private Room	3	37.5	5	62.5	8	17.8
Open House						
Yes	9	27.3	24	72.7	33	73.3
No	7	63.6	4	36.4	11	24.4
N/A	1	100	0	00.0	1	2.2
Family Assistance						
Yes	9	28.1	23	71.9	32	71.1
No	8	61.5	5	38.5	13	28.9
Intrainstitutional Relocation						
Yes	8	50	8	50	16	35.6
No	9	31	20	69	29	64.4
TOTAL	17	37.8	28	62.2	45	100.0

Table 6. Frequency Distributions of Subjects Who Died by Gender and Time Period After Relocation (n=28).

Time Period	Males		Females		Total	
	#	%	#	%	#	%
3 months	6	42.9	2	14.3	8	28.6
6 months	5	35.7	3	21.4	8	28.6
9 months	2	14.3	1	7.1	3	10.7
12 months	0	0.0	2	14.3	2	7.1
18 months	0	0.0	3	21.4	3	10.7
24 months	1	7.1	1	7.1	2	7.1
30 months	0	0.0	2	14.3	2	7.1
Grand Total	14	50.0	14	50.0	28	100.0

Table 7. Comparisons of Frequency Distributions of Subjects by Survival Status and Gender in Ehrmann-Vanderbilt Study (n=45) and Anderson Study (n=77) Twelve Months After Relocation.

	Mean Age	Lived		Died		Total	
		#	%	#	%	#	%
Ehrmann-Vanderbilt Study (n=45)							
Males (n=25)	76	13	52	12	48	25	56
Females (n=20)	87	12	60	8	40	20	44
Total Group	81	25	56	20	44	45	100
Anderson Study (n=77)							
Males (n=13)	80	9	69	4	31	13	17
Females (n=64)	83	37	58	27	42	64	83
Total Group	83	46	60	31	40	77	100

Table 8. Comparisons of Frequency Distributions of Subjects by Survival Status and Diagnosis of Dementia in Ehrmann-Vanderbilt Study (n=45) and Anderson Study (n=77) Twelve Months After Relocation.

Diagnosis of Dementia	Lived		Died		Total	
	#	%	#	%	#	%
Ehrmann-Vanderbilt Study (n=45)						
Yes (n=36)	20	56	16	44	36	80
No (n= 9)	5	56	4	44	9	20
Anderson Study (n=77)						
Yes (n=42)	24	52	18	58	42	55
No (n=35)	22	48	13	42	35	45

Table 9. Comparison of Frequency Distributions of Subjects Who Died in Ehrmann-Vanderbilt Study (n=45) and Anderson Study (n=77) by Gender and Time Period After Relocation.

Relocation Time Period	Males				Females				Totals			
	A		B		A		B		A		B	
	#	%	#	%	#	%	#	%	#	%	#	%
3 months	5	41.5	3	75.0	2	25.0	14	51.9	7	35	17	55
6 months	5	41.5	1	25.0	3	37.5	2	7.4	8	40	8	10
9 months	2	17.0	0	0.0	1	12.5	3	11.1	3	15	3	10
12 months	0	0.0	0	0.0	2	25.0	8	29.6	2	10	8	25
Grand Total	12	100.0	4	100.0	8	100.0	27	100.0	20	100	31	100

Ehrmann-Vanderbilt Study = A
Anderson Study = B

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