

AN EXPLORATION OF SELECTED NONCOGNITIVE VARIABLES
AS PREDICTORS OF SUCCESS
IN BASIC NURSING EDUCATION PROGRAMS

by

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(ABSTRACT)

Prediction of success in nursing education has centered primarily on cognitive variables with resulting predictions of 30 to 45% of the variance. Noncognitive predictors have been found to correlate with success in academic endeavors other than nursing. Most studies of noncognitive predictors utilize one or two variables.

The purpose of this study was to explore the relationship of social support, life change events, locus of control, and self-esteem as predictors of success in basic nursing education. The study population was a sample of 195 students completing the final semester in two associate degree and two baccalaureate degree nursing programs in one state. The Norbeck Social Support Questionnaire was used to assess social support, the Life Experiences Survey to determine life change events scores, Levenson's I, P, and C Scales was used to assess locus of control, and the Tennessee Self Concept Scale was administered to determine self-esteem.

Selected demographic data were collected and analyzed to reflect frequencies, trends, and other general characteristics. Success, the dependent variable, was the cumulative college grade-point average. Multiple regression analyses revealed that three of the 10 independent variables (self-esteem, negative life change events, and social support loss) contributed 7% to the prediction of success in basic nursing education in this study. When analyzed separately, it was found that the three variables predicted 10.2% of the explained variance for the associate degree group but that there were no significant predictors for the baccalaureate degree group.

This study is dedicated to my husband,

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CHAPTER 1

INTRODUCTION AND STATEMENT OF PROBLEM

Research into prediction of success in different types of nursing education programs has primarily centered on cognitive characteristics, such as high school grade point average, high school grades in general and in specific subjects, high school rank, standardized preadmission tests (Chissom & Lanier, 1975; Knopke, 1979; Kovacs, 1970) and demographic data, such as age (Aldag & Rose, 1983), socioeconomic status (American Council on Education, 1974; Pavalko, 1969; Reed, Feldhusen, & VanMondfrans, 1973), marital status (Knopf, 1972; Wren, 1971), and sex (Johnson, 1974; Nash, 1975). Higgs (1984, p. 78) states that "...the average criterion variance accounted for by achievement and aptitude predictors has peaked at about 30-45%...". If this is the case, then do noncognitive data (personality, social and environmental factors) constitute the remaining 55-70% of the variance which predicts success in nursing education? Are there particular personality and/or social characteristics that can assist nursing educators in the selection of students who are most likely to be successful?

Higher education is a stressful process. The attainment of one's educational goals is related to a

variety of things: a person's intellectual abilities, the reasons behind the need for the further education (a job, financial security, independence, promotion, etc.), the encouragement one receives from achievement and from supportive others, the ability to finance the education, adequate time to devote to the goal, and, undoubtedly, many other variables. Selecting those criteria most related to success is the responsibility of collegiate admission departments. Investigation of the use of scores of testing devices reveals no one best predictor. Alichnie & Bellucci (1981) studied baccalaureate nursing students in two classes to determine predictive values of cognitive and noncognitive variables. Using twelve noncognitive scores from Gordon's Surveys of Personal and Interpersonal Values, they found only one variable, orderliness, entered the prediction equation at less than the .05 probability level. The orderliness variable ranked fourth after the Aptitude Test for Nursing, the mathematics score on the Scholastic Aptitude test (SAT), and the high school rank.

Attrition in nursing education is expensive, irreversible (there can be no way to fill the vacancies created during a semester) and results in fewer graduates for employment. Identification of characteristics of successful students will hopefully contribute to knowledge which will allow selection of the most promising candidates.

Conceptual Framework

This study proposes a conceptual model based on the use of psychosocial assets as predictors of success in basic nursing education programs. The psychosocial assets which one brings to any stressful situation influence the outcome. Overwhelming stress has a negative effect on outcome. It is known, however, that one needs a certain amount of stress to be stimulated to respond and to keep the body and mind alert (Selye, 1976). It is proposed that four variables intervene in the stress process or mediate the stressors to assist with a positive outcome: social support, life change events, locus of control, and self-esteem (Figure 1). Having a network of persons with whom to discuss one's life and from whom to feel the potential for assistance if needed can help to reduce the stress or assist with the ability to cope with it. Life events which require extensive adaptation/adjustment may interfere with a desirable or positive outcome. Believing that one has control over outcomes contributes to achievement of those outcomes. One's self-worth is reinforced by successful achievement and successful achievement thereby contributes to a higher self-esteem. It is therefore postulated that individuals with high psychosocial assets are able to cope more satisfactorily with the stress of a nursing education program.

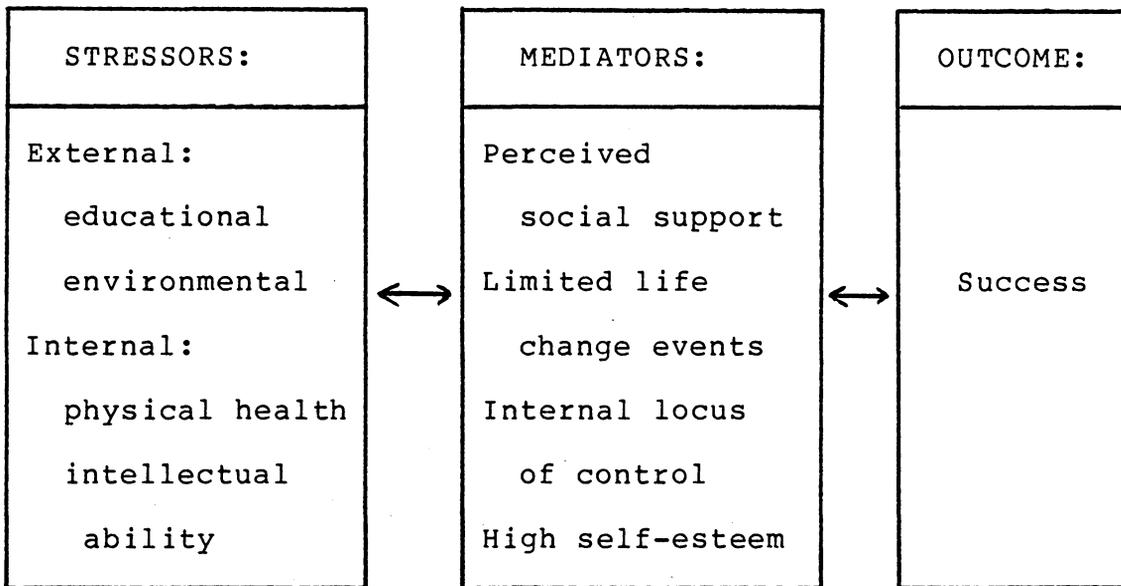


Figure 1. Conceptual model.

Virginia Henderson, whose definition of nursing has been used for over thirty years, describes the nurse's work as demanding "self-understanding and a universal sympathy for diverse human beings ... the personality of the nurse is probably the most important intangible in measuring the effect of nursing care" (Henderson, 1964, p. 78).

In her chapter on stress and the nursing student, Anderson (1983) enumerates the kinds of stresses the nursing student finds. She includes faculty expectations, heavy course load, especially core courses carrying high credit hours that culminate in a single grade, extensive new terminology, dealing with life and death in the clinical area, the prevalence of team teaching which decreases one's ability to "psych out" the professor, inability to

attain support from those who previously provided it, the economic burden, and work/academic overload. One would expect that those individuals who have been successful in the past (school, work, family responsibilities, etc.) would be more apt to be successful in nursing. Most educators can cite examples of students who should be successful but who fail or dropout for other than academic reasons and those who attain success when it would appear unlikely.

Grant (1983), in analyzing literature of the past ten years, found that the best predictor of future success was past success. He focused primarily on cognitive predictors and concluded that they do not predict which students will complete the nursing education program. He stated:

The situation may be one where highly complex interrelationships between intellectual ability, personality variables, and teacher-student interactions determine whether students will succeed and finish their nursing education. Continuing effort needs to be put into the multi-variate approach in research to answer our questions (pp. 82-83).

There is empirical evidence that social support (Berkman & Syme, 1979; Gore, 1978), life change events (Holahan & Moos, 1982; Lin, Ensel, Simeone, & Kuo, 1979), and locus of control (Johnson & Sarason, 1978; Kobasa, 1979; Sandler & Lakey, 1982) are related to illness development

and to recovery from illness. There is also evidence that these variables may influence academic achievement (Frerichs, 1973; Hilbert & Allen, 1985; Lloyd, Alexander, Rice, & Greenfield, 1980). There have been many studies which correlated self-esteem and achievement (Burgess, 1980; Jones, 1977). Results are often conflicting. Hilbert and Allen (1985) investigated the effect of social support on the educational outcomes of senior nursing students. They found a positive relationship ($r=.16$, $p<.05$) between social support and self-esteem but no significant correlation between social support and cumulative grade point average or National Council Licensure Exam scores and no significant correlation between the influence of social support on test anxiety as a measure of stress. Lloyd et al. (1980) in a longitudinal study of twins, triplets and their siblings found a threshold effect for life change events in which the observed association between life change events and academic performance was due primarily to those cases where more than twelve events occurred. They found a weak positive correlation between life change events and academic performance and concluded it "appears that too much life stress can have a detrimental effect on academic performance" (p. 23). In a study with a large sample of associate degree nursing students, Frerichs (1973) found that married, older students and those with previous nursing

experience exhibited greater internal locus of control and that married students had higher self-esteem. Undergraduate nursing students had a higher self-esteem than is reported for the general population and the correlation between clinical grades and self-esteem was positive, according to a study by Burgess (1980). Jones (1977) found that students who remained in a community college program had significantly higher self-esteem than those who withdrew before completion of the nursing program.

This investigator theorizes that those students with high psychosocial assets, that is, indication of adequate social support, moderate life change event scores, an internal locus of control, and high self-esteem, will be more successful in their nursing programs. One would expect that an indication of adequate social support would reveal a sense of interrelationships that could be called upon in times of need. The ability to cope with life change events is an indication of resourcefulness and strength. One would expect that the successful student would not indicate an excessive number of life change events that would require extensive adjustment/adaptation.

Internal locus of control represents a personal belief that reinforcement is contingent upon one's personal behavior. External locus of control represents the belief that reinforcements are controlled by forces outside one's

self and this may occur independently of one's actions. "It has been theorized and supported that "internals" will seek more information and achieve higher grades, show more overstriving and have better study habits, and demonstrate greater personal stability in the face of academic pressure" (Grover & Tessier, 1978, p. 735). It is also theorized that internals, believing their achievement results from their own behaviors, will exhibit more initiative and persistence in achieving academic goals, whereas externals, blaming forces outside their control, will not persist and will fail. It is believed that extreme externality or internality may impair functioning. A positive feeling about one's self (high self-esteem) would be promoted by continued success in an educational program.

It is not known how or if these factors interact to affect academic success. This study will attempt to determine the role that social support, life change events, locus of control, and self-esteem have on the prediction of success in basic nursing education programs.

Research Questions

Identification and selection of students who can be expected to be successful in a basic nursing education program is vital to the nursing profession. If it can be determined that particular noncognitive characteristics are significant in predicting success in basic nursing education

programs, attrition could be reduced and more nursing graduates would be available for employment.

Studies of noncognitive characteristics as predictors of success in nursing education are few. This study will attempt to explore several noncognitive characteristics of students who have achieved a measure of success in basic nursing education programs and develop a profile of characteristics of success.

To that end, the following is the major research question:

To what extent do the variables social support, life change events, locus of control, and self-esteem contribute to the prediction of success in nursing?

Because of the exploratory nature of this study, hypotheses were not developed.

Significance of the Study

This study proposes to explore the relationship of selected noncognitive variables as predictors of success in basic nursing education programs. Because attrition is financially and emotionally costly the identification of characteristics of success should contribute to more appropriate access to careers in nursing.

"Prediction studies historically have been limited to single predictor statistical approaches although

multivariate approaches have become prevalent in both nursing and education in recent years" (Higgs, 1984, p. 78). This study will attempt to use multiple regression statistical techniques to complement existing information. The stepwise regression procedure inserts variables in turn until the regression equation is satisfactory.

Limitations of the Study

The exploratory nature of this study places limitations on generalizability of the results. The study will be limited to students in the final semester in nursing in two associate degree and two baccalaureate programs in one state. The sample will limit generalizability to other populations.

Definition of Terms

For the purpose of this study, the following definitions explain the terms:

social support: interpersonal resources available through interactions with family, friends, peers, professionals, and the community.

life change events: self-reported life changes which require some adjustment/adaptation on the part of the individual experiencing the event(s).

locus of control: belief in the extent to which one has influence over the outcome of an event.

self-esteem: the sum total of the perceptions observed, experienced and judged by the individual about that individual.

Summary

In summary, this study investigated the relationship of four noncognitive variables as predictors of success in basic nursing education programs. Students completing their nursing education programs in four schools of nursing completed a questionnaire which included demographic data and measures of social support, life change events, locus of control, and self-esteem. Stepwise multiple regression procedures were used to determine which variables best predicted success in basic nursing education.

CHAPTER 2

REVIEW OF RELEVANT LITERATURE

Introduction

Attrition in nursing education programs approaches 50%. If characteristics of successful nursing students can be determined, the economic, emotional, and academic losses of attrition may be curtailed. Since education is a stressful process, variables which are related to the ways in which humans cope with stress will be investigated as predictors of success in basic nursing education. Literature which concentrates on social support, life change events, locus of control, and self-esteem will be reviewed.

Social Support

The burden of an educational program impinges on the stress of everyday life. Students who add college classes to home, family, and work responsibilities need adequate interpersonal resources to cope successfully.

Social support is broadly defined as the support accessible to an individual through social ties to other individuals, groups, and the larger community (Lin, Dean, & Ensel, 1981). Kahn (1979) adds multidimensionality to the concept of social support by defining it as "interpersonal transactions that include one or more of the following key

elements: affect, affirmation, and aid" (p.85). Affective transactions are expressions of liking, admiration, respect, or love. Transactions of affirmation are expressions of agreement or acknowledgement of the appropriateness or rightness of some act or statement of another person. Aid is a transaction in which direct aid or assistance is provided, that is, possessions, money, information, or time. LaRocco, House, and French (1980) contend that "although most researchers share a general sense of what social support is, specific conceptual definitions and operational definitions vary widely, making it difficult to cumulate and compare the results of various studies" (p. 202).

Cobb (1976) and Kahn and Antonucci (1980) propose a birth-to-death perspective for social support. Cobb (1976) believes social support begins in utero and that following birth support is provided by family, peers, the community, and the helping professions. He conceives social support as information belonging to one or more of the following three classes:

- 1) information leading the subject to believe that he is cared for and loved (emotional support)
- 2) information leading the subject to believe that he is esteemed and valued (esteem support)

3) information leading the subject to believe that he belongs to a network of community and mutual obligation (network support).

Social support facilitates coping with crisis and adaptation to change. "Supportive interactions among people are protective against health consequences of life stress" (Cobb, 1976, P. 314).

Sources of social support may be formal (professionals or self-help groups) or informal. Professionals include physicians, nurses, and social workers. Alcoholics Anonymous is the most widely recognized self-help group. Informal social support may be provided by family, friends, peers, or coworkers.

Cassel (1976) believes it is possible to develop a preventive health service to identify families and groups at high risk by virtue of their lack of fit with their social milieu and to determine the particular nature and form of social supports that can and should be strengthened if such people are to be protected from disease outcomes. He speculated that being deprived of meaningful social contacts (as one is with an isolating illness such as tuberculosis, schizophrenia, or alcoholism) may lead to alterations in the neuroendocrine balance. In contrast, adequate social supports provide a protective function that buffers or cushions the individual from the psychological and

physiological consequences of exposure to the stressor situations.

In their often cited study of the buffering effect of social support on pregnancy, Nuckolls, Cassel, and Kaplan (1972) found that women with high life change scores and high social support had fewer complications of pregnancy than other women with similar life change scores and low social support.

Not all researchers agree that there is evidence of a buffering effect of social support. Pinneau (1975) in his investigation of the effects of social support on occupational stress found little evidence to support a buffering hypothesis. In reanalyzing Pinneau's data, LaRocco et al. (1980) found evidence to support the buffering hypothesis. In a study of the relationship of psychological resources to the occupational stress and burnout among female staff nurses, Paredes (1982) found no evidence of a buffering effect of social support.

In a study of men in both rural and urban areas who were involuntarily unemployed, Gore (1978) found that social support modified the severity of psychological and health-related responses to unemployment. Social networks, as described by Lin et al. (1981),

describe the direct and indirect ties linking a group of individuals over certain definable criteria such as

kinship, friendship, and acquaintances. These networks provide the structural framework within which support may or may not be accessible to an individual. Thus, social support extends beyond the structural characteristics of social networks and identifies the resources that are available to the individual in a crisis (p. 74).

In a study of over 500 general population subjects, McFarlane, Neale, Norman, Roy, and Streiner (1981) found a mean network size of nine persons. Women reported larger networks than men and men indicated more work-related individuals in their support networks. Wan (1982) found that nonwhite married females had the highest network scores and single males the lowest network scores. Billings and Moos (1982) found that the strength of the relationship between social support and personal functioning was conditioned by gender differences and by the source of support. "The cross-sectional relationships between family support and functioning were stronger among women than men, whereas those between work support and functioning were stronger among men than women" (p. 305). Chu (1982), in a study of college students, also found a gender differential. She concluded that men and women respond differently to life stress under different conditions of social support depending upon types of illness indicators.

Three major components of stress (its sources, mediators, and outcomes) were the focus of a longitudinal study by Pearlin, Lieberman, Menaghan, and Mullen (1981). They defined stress as the "result of a struggle to reestablish a homeostasis following change" (p. 339). Their study population of over 1100 individuals was observed to identify how life events, chronic life strains, self-concepts, coping, and social support come together to form a process of stress. They proposed that adverse consequences, at least those involving psychological stress, depend not only on the number of events and the magnitude of the changes they entail, but on the quality of eventful changes as well. Mediating resources are crucial events invoked by individuals in behalf of their own defense. Social support and coping were identified as two types of mediating resources. Pearlin et al. (1981) believe that the quality of the relationship is most important in social support, not the extent of the network.

Cobb (1979) proposed that social support has beneficial effects on a wide variety of health variables throughout the life course. He stated, "One cannot escape the conclusion that the world would be a healthier place if supportive behaviors were built into the routines of our homes and schools, and support worker roles were institutionalized" (p. 113).

Sarason and Sarason (1982) described the depth of relationships as elements in social support. The more extensive and deep are relationships the more likely one is to help others and to feel that help is available when and if needed. Limited social relationships, on the other hand, appear to make the individual feel less empathy for other persons and to feel a lack of support from others. They proposed that people with good social supports will have more helpful attitudes toward other people.

Finding a need for tools to tap quality and quantity of social support, Holahan and Moos (1982) developed the Family Relationships Index (FRI) and the Work Relationships Index (WRI). These instruments were used on a randomly selected community sample (equal numbers of males and females) of adult family members. Their results were consistent with other research that indicated a relationship between life change and physiological and psychological morbidity and distress that was greatest for persons who experience both a high level of life events and low social support. They found the work environment a considerably more important source of social support for males than for females and the family environment an especially potent source of social support for unemployed females. This may change as more women hold responsible positions in business and industry and develop greater work-related social supports.

Using a sample of 124 junior and senior year nursing students, Hilbert and Allen (1985) studied the relationship of social support and self-esteem to educational outcomes. They hypothesized that there would be a positive relationship between social support and grade point average (GPA) and a positive relationship between social support and self-esteem. They administered the Inventory of Socially Supportive Behaviors and Coopersmith's Self-Esteem Inventory and found no significant correlation between social support and GPA. Their study did find a positive correlation between social support and self-esteem ($r=.16$, $p<.05$). They concluded that the social support measure may have been too global and recommended continuing to search for a measure which determines strategies to provide support for students.

In the work environment, nurses are expected to provide much physical and emotional support for their clients. They also teach clients and families coping skills. As Sarason and Sarason (1982) indicated, individuals with good social support are more helpful to others. For these reasons one would anticipate that successful nurses themselves have adequate social support.

Life Change Events

Researchers interested in adaptation as a means of coping with the stresses of life and the effects of these

stresses on health/illness noted that illness tended to cluster during or following periods of stress. Before 1950, Holmes and his associates began a systematic study of the quality and quantity of life events observed to cluster before and during onset of illness. Holmes and Hawkins constructed the first edition of the Schedule of Recent Experience (SRE) questionnaire in 1957. The SRE is a life changes incidence questionnaire of 42 items which collects information on life changes in the areas of work, home, family, finances, and community over the preceding one-year interval. The Social Readjustment Rating Questionnaire (SRRQ) was developed to quantify the life change and readjustment secondary to experiencing the life change events. The SRRQ utilized a ratio scale to determine mean life change scores for the events. The resulting mean life change scores are referred to as Life Change Units (LCU). In 1974, Rahe (1978) took the original SRE items, added 13 new life change questions, and appended subjective life change scaling instructions. This new instrument was titled the Recent Life Changes Questionnaire (RLCQ). The Subjective Life Change Unit (SLCU) scaling system is an interval scale (0 to 100) which allows the individual to estimate the amount of life change and readjustment personally experienced with the recent life change event.

Pesznecker and McNeil (1975) investigated the relationship between health habits, social assets, psychological well-being, and life change with alterations in health status in a systematically selected sample of householders. The survey questionnaire measured life change events by the total (LCUs) calculated from responses to a modified form of the SRE. The SRE was modified to eliminate one item which duplicated the dependent variable. Of the eight major variables (LCUs, health habits, psychological well-being, past social support, present social support, sex, social class, and age) the single best predictor of subsequent alterations in health status was found to be the magnitude of the life change. As the life changes increased, the risk of becoming ill also increased. They found that all the variables together accounted for about 14% of the explained variance in the dependent variable and that the LCU alone accounted for 10% of the variance. They recommended that these findings should encourage nursing to provide greater educational opportunities for clients to learn about adapting and coping with change as well as preventing unnecessary changes. Nurses can act as buffers and promote wellness.

In a study using the SRE, RLCQ, and others to total 118 items, Tausig (1982) found the original SRE without Christmas as good a predictor of depression as the expanded

(118-item) scale. However, he found that the correlation between life events and depressive symptoms accounted for only 4.4% of the variance indicating it is not a powerful predictive instrument for depression.

Skinner and Lei (1980) empirically found six distinct clusters on factor analyzing the SRE and several other tests. The clusters identified were: personal and social activities, work changes, marital problems, residence changes, family issues, and school changes. They reported that using a total score may mask the presence of consistent relationships between the more homogenous factors scales and external variables. Since their study was conducted on an alcoholic and drug abuse population it should be replicated on a more "normal" population before being considered conclusive.

Rahe (Skinner and Lei, 1980) has suggested six categories for the RLCQ (not based on empirical data): family, personal, work, financial, health, and marriage. Generally the RLCQ events are summed to yield a single total score. This may obscure meaningful relationships. In a study of patients with chronic asthma, DeAraujo, VanArsdel, Holmes, and Dudley (1973) found that those patients with high psychosocial assets had the potential to utilize many resources in an appropriate way to deal with life changes and disease and to thereby require less medical therapy for

control of asthmatic symptoms. DeAraujo et al. used the Berle Index, a multifaceted tool, to judge psychosocial assets.

Miller, Ingham, and Davidson (1976) investigated the relationship between common physical and psychological symptoms among individuals who had consulted a physician recently and those who had not seen a physician. They found that consulters had more threatening life events. People with few casual friends tended to have higher symptom levels and, among consulters only, a greater number of threatening events.

McGrath and Burkhart (1983) used a modified version of the SRRQ and had respondents indicate if the event was desirable, undesirable, expected, or unexpected. Their research suggests that having a person indicate those events which occurred in the last year and were undesirable is a quick measure of the event of life stress. They found that subjectively undesirable events, that is, the number of events the respondents considered to have been personally undesirable, to be the best predictor of life stress.

Because they concurred with other researchers that the SRE might not be the appropriate scale for a collegiate population, Schuette, Sinnett, and Downey (1980) developed the Collegiate Life Change Questionnaire. This tool modified the SRE by eliminating items which did not generate

a satisfactory distribution or seemed inappropriate to a college-age group and added some more appropriate items. They used unit-weight scores: number of positive changes, number of negative changes, and total number of changes. They found no evidence that the life stress concept has utility as a scoring measure for identical subjects who need or will use counseling or mental health services. They concluded that a life change tool using weighted scores produced no benefits over a simple score.

In a longitudinal study of twins, triplets, and their siblings concerned with the relationship between the stress of life change and academic performance, Lloyd et al. (1980) found a weak positive correlation between life change and academic performance. Those students classified as belonging to the academic sanction group demonstrated significantly higher life event scores. The authors concluded, "It appears that too much life stress can have a detrimental effect on academic performance" (p. 23). They also found 3 of the 40 events occurred in excess among the students who performed poorly. Two of the three were work related indicating a possible conflict between the job and academic responsibilities.

Myers, Lindenthal, and Pepper (1975) hypothesized that those people who report higher social integration will have a fewer number of psychiatric symptoms. They found that

"people who have ready and meaningful access to others, feel integrated into the system, and are satisfied with their roles seem better able to cope with the impact of life events" (p. 426). They propose that "education may play a palliative role in protecting the individual against the shock of life crises by virtue of the options it opens for him" (p. 426). They found that negative life events were consistently positively related to psychiatric disorders. Other studies have suggested that locus of control beliefs moderated the effects of negative but not positive life events. Myers et al. (1975) found no evidence of moderating effects.

Brim and Ryff (1980) caution that when looking at the causes of or attempting to relate causes to life events one look beyond vividness or dramatic event (e.g., marriage as the cause; often used when actually it may involve more events than just the marriage), recency (blaming the event on a recent occurrence and not looking back far enough into time for the real cause), size and power (missing the gradual cumulative impact by concentrating on big events), and simplicity (attributing cause to a single event rather than interaction effects of a number of events). They include in the multidimensional nature of life events the biological, social, psychological, and physiological occurrences.

Locus of Control

Social learning theory is concerned with why individuals behave in certain ways under given conditions and the effects of certain reinforcement patterns on their behavior. Rotter (1954) identified behavior potential in specific situations as a function of the expectancy that reinforcement will occur and the value of that reinforcement for the individual. Each time an individual's behavior is followed by the expected outcome, the individual's expectancy that the reinforcement is related to that behavior is increased. A history of reinforcements unrelated to the individual's efforts results in expectancy that reinforcements are not contingent upon one's own behavior but are dependent upon an outside source. According to Rotter, these two reinforcement patterns lead to either the general expectancy that rewards are contingent upon internal resources (e.g., effort) or the general expectancy that rewards are externally related to such things as luck, chance, fate, or powerful others. This general expectancy is referred to as "locus of control". Lefcourt (1976) defines locus of control as a "circumscribed self-appraisal pertaining to the degree to which individuals view themselves as having some causal role in determining specified events" (p. 141). The manner in which individuals appraise themselves with regard to causality makes a

considerable difference in the ways that many life experiences will be confronted. The concerns, values, or preferences of individuals are of importance equal to causality. Individuals who believe that they have some control over their destinies are considered "internals". "Externals" believe that their outcomes are determined by agents or factors extrinsic to themselves, such as, fate, luck, chance, powerful others, or the unpredictable (MacDonald, 1973).

Internals show more initiative and effort in controlling their environment and are better able to control their own impulses. They show greater tendency to seek information and to adopt behavior patterns which increase personal control over their environment. Internals are more cautious risk takers than are externals and are more successful in influencing peers to change their minds. They are more apt than externals to forget their failures.

Externals experience more feelings of powerlessness and frustration and are more prone to aggression and hostility. They are less trustful of others, more suspicious, and dogmatic. They are relatively anxious and lack self-confidence and insight. Some have argued that a belief in luck can be a useful defense mechanism that allows one to preserve self-esteem in the face of failure (McLaren, 1982).

Clark (1984) defines locus of control as "that point between two extremes where a person perceives the control he has over his own circumstances" (p. 53). This definition concurs with Rotter's definition and is a unidimensional construct. Levenson (1973) sees the locus of control construct as multidimensional. This is a more prevalent view today.

Bar-Tal and Bar-Zohar (1977), in a review of 36 studies, found a "firm trend indicating that the perception of locus of control is related to academic achievement. This trend suggests that the more internal the individual's orientation, the higher the individual's achievement" (p. 182). They found that the Rotter Internal-External (I-E) Scale generally did not correlate or negatively correlated with college-age students. They found evidence suggesting that internals exhibit more task-oriented motivation in their behavior than externals and that internals are more likely to experience actualization of their goals because these goals are viewed through more realistic expectations.

Studies indicate that externals have a higher level of anxiety than internals and this anxiety might hinder the motivation to initiate and sustain achievement-related behavior. Externals may engage in more escaping, task-irrelevant behavior (television watching, daydreaming) in order to facilitate anxiety reduction.

There are two views on the stability of locus of control: stable and subject to modification. The second view is certainly more hopeful for education. Situational variables may influence modification. Behavior modification advocates would seem to concur with the second viewpoint.

LaMontagne (1984) cites research in which she suggests: personal control or the belief that one has control (internal locus of control) can reduce the aversiveness of noxious stimulus and increase performance and information seeking. Events perceived as uncontrollable (external locus of control) lead to response behaviors such as helplessness, reduced acquisition of information, and detachment from stressful stimuli. (p. 76)

She designed a study to determine children's locus of control beliefs as predictors of coping behaviors with 51 children ages 8 to 12 years admitted for elective minor surgery. Children rated as active copers (i.e., information seekers) showed significantly more internality than children rated as avoidant or using a combination of avoidant-active coping modes. She concludes,

Patients with internal beliefs are more likely to adopt active coping behaviors, whereas patients with an external orientation are more likely to adopt avoidant strategies. This has important implications for

nursing. The type of intervention should be appropriate to the child's coping strategy and the situational demands. (p. 85)

Killinger and Boivin (1982) compared locus of control among students within a prison setting and students in a college setting. Based on the belief that internal students tend to predict and achieve higher scores in their classes and to be more satisfied with their studies than external students, they administered Rotter's I-E Scale to randomly selected students in a college setting and in a prison setting. Their only significant finding was that prisoners were more externally oriented regarding their belief in a politically responsive world.

Grover and Smith (1981) found that a majority of their small sample of medical students exhibited a shift of locus of control toward greater externality during the first year of medical school. Students in the highest achievement group displayed the most marked change in both external and internal directions. They speculate that the reason for the greatest directional change in the high achievement group is an indication of the individual's willingness to modify his locus of control to adapt to the perceived demands of the environment in an attempt to limit stress and anxiety.

Sandler and Lakey (1982) in investigating internal locus of control as a moderator of the negative effects of

stress (Johnson & Sarason, 1978; Kobasa, 1979) did not find the expected effect. They had predicted that when viewing social support "as a multifaceted resource (including information, task assistance, emotional support, etc.) which one can utilize to assist with coping with stress, it is reasonable to expect that internals will make better use of this resource than externals" (p. 67). They did, however, find that internals are less effected by stressors than are externals. Locus of control was found to correlate significantly with the total social support score ($r(90)=.21, p<.05$); externals received more support than internals.

Toves, Schill, and Ramanaiah (1981) found small but significant correlations which suggested that internality was only an advantage for a male. "Apparently, feeling that one controls one's reinforcement does not help a woman in dealing with stress" (p. 508). Brown and Strickland (1972) found that internal locus of control is related to general achievement-oriented behavior for males but not for females. Finding other studies which confirmed this, Lefcourt (1976) concluded that the "verbal expression of perceived causality has a different meaning for males and females, at least insofar as scores on current assessment devices are concerned" (p. 146).

Citing few studies determining personal control characteristics in nursing students and noting that these characteristics can ultimately affect students' approach to professional development as well as care given to patients, Stevens (1982) investigated the relationship of locus of control, sex-role identity, and assertiveness in baccalaureate nursing students. Using three self-report questionnaires (including Levenson's Internal, Powerful Others, and Chance Scales) and demographic information she obtained information from 310 beginning and graduating nursing students in five baccalaureate nursing programs. She found that graduating students scored higher on assertiveness, powerful others, and masculinity than beginning students.

In a psychiatric setting a therapeutic goal often encourages an internal locus of control indicating mastery over the environment and control of one's own behavior. Because she found no clear evidence indicating that locus of control scores (as measured by Rotter's I-E Scale) changed significantly with clinical improvement, Levenson (1973) constructed three new scales (internal, powerful others, and chance) to measure belief in chance or fate expectancies as separate from a powerful others orientation. Her rationale for this differentiation stemmed from the reasoning that "people who believe the world is unordered (chance) would

behave and think differently than people who believe that the world is ordered but that powerful others are in control" (p. 398). With a powerful others belief a potential for control exists. Levenson (1974) states, "it was expected that a person who believes that chance is in control is ... cognitively and behaviorally different from one who feels that he himself is not in control" (p. 378). She therefore undertook to separate Rotter's conceptually unidimensional I-E Scale into three dimensions (Internal, Powerful Others, and Chance) in order to understand the relationship between involvement and expectation for control. Two studies were undertaken to ascertain the validity of the multidimensionality of locus of control. In one study, 96 adults indicated that only a belief in chance was differentially related to involvement. In the second study the factor-analyzed responses of 329 college males on the 24 items confirmed three main factors (I, P, and C) as predicted.

Levenson (1973) then used the I, P, and C Scales in a study with psychiatric patients. She hypothesized that a patient with a powerful others orientation would be less "sick" than one with a chance orientation because the patient with the powerful others orientation would have the potential for anticipating events even without control of the events. Psychiatric patients (N=165) primarily admitted

with a diagnosis of schizophrenia, mean age of 37 years, were administered the I, P, and C within five days of admission and at monthly intervals. The hospitalized sample believed that they were controlled by powerful other and chance forces to a greater extent than the nonpsychiatric sample. Levenson found no differences between groups on the Internal scale but there were significant differences between groups on the Powerful Others ($p < .01$) and Chance ($p < .05$) scales. Internal scale scores on retest were significantly higher (no significant differences on P and C scales) suggesting that the internal dimension is most open to change and that powerful others and chance control are more impermeable.

To investigate the relationship between internal locus of control and independent decision-making in nursing students, Neaves (1982) used Rotter's I-E Scale and an investigator-designed decision-making questionnaire. She was seeking to distinguish between individuals who selected nursing actions that were based on prudent nursing practice or deferred to authority. A positive relationship between the internal locus of control and independent decision-making at statistically significant levels ($r = .21$, $p < .05$) was found for a sample ($N=91$) of senior nursing students in baccalaureate and diploma programs. Neaves states, "it appeared that locus of control was the dominant determinant

of the decisions selected, and took precedence over the rules and principles of conduct routinely taught with the administration of medications in nursing education" (p. 36).

Self-esteem

Abraham Maslow (1970), in describing his Hierarchy of Needs, placed esteem needs above physiological, safety, and belongingness and love needs. He identified two sets of esteem needs: 1) a desire for strength, achievement, adequacy, mastery and competence, confidence in the face of the world, and independence and freedom; and 2) the desire for reputation or prestige, status, fame and glory, dominance, recognition, attention, importance, dignity, or appreciation. "Satisfaction of the self-esteem needs leads to feelings of self-confidence, worth, strength, capacity, and adequacy of being useful and necessary in the world. But thwarting of these needs produces feelings of inferiority, of weakness, and of helplessness" (Maslow, 1970, p. 45). He further identified the most healthy self-esteem as that based on deserved respect from others rather than on recognition through fame and unwarranted adulation. Meeting of the esteem needs is a prerequisite for self-actualization, the highest level in Maslow's Hierarchy. High self-esteem is considered to be a healthy and desirable characteristic. Low self-esteem has been linked to depression, neuroticism, anxiety, poor general adjustment,

and self-referral to mental health facilities (Whiteley, 1983).

Self-esteem most often refers to an organization of perceptions about one's self. It is considered to be the evaluative component of the self-concept. High self-esteem persons tend to look at their own needs and relevant attributes in determining satisfaction with their occupational choice, whereas low self-esteem persons look more toward external cues. Persons of low self-esteem are more likely to conform, are more sensitive to criticism than those with high self-esteem and look more toward other people's attitudes and feelings in gauging their own satisfaction. The high self-esteem person is more likely to have formulated an internal value system from which decisions are made and is more likely to consider all options in choosing an occupation and to choose one which requires high abilities than is the low self-esteem person. The low self-esteem person is more threatened by conflict.

The self-concept is a learned construct based on one's experiences, relationship with significant others, and the perceptions of the realities of the world. It is believed to be a relatively fixed and stable construct once past the second decade of life. It is probably safe to say that refinements occur throughout life.

There appear to be no longitudinal studies on the development of the self-concept. Grant (1966) administered the Tennessee Self Concept Scale (TSCS) to 500 individuals between the ages of 20 and 69 years. Her findings indicated variations of the self-concept at different age levels and that reported feelings about oneself tended to become more positive with age. There is strong evidence of parental influence on the development of the self-concept on their children. The more positive and healthy the parents' self-concept the more in the same direction their children developed (Fitts, Adams et al., 1971).

Several studies have shown slight, but significant, positive correlations between self-concept, intelligence, and school achievement. Fitts (1972) interpreted this as an interaction effect wherein a good self-concept contributes to effective performance, which in turn contributes to a healthy self-concept. The opposite of this also appears to be true: academic failure and low self-concept are closely associated.

Employers of nurses expect these personnel to perform at a higher level than is often observed (Kramer, 1974). This leads to a conflict between nursing service administrators and nursing educators. Nursing service administrators expect competence in certain skill areas. Nursing educators have emphasized knowledge and patient care

skills with the expectation of competence. When nurses are hesitant or question their technical performance it is often interpreted as a lack of self-confidence (Kramer, 1974). Nursing educators are often accused of contributing to newly graduated nurses' lack of self-concept by being so available to students and not allowing or requiring the students to function on their own.

Ellis (1980) used the TSCS to determine if there were differences in self-concept levels between freshman, sophomore, junior, and senior baccalaureate nursing students. Of the eight subscales measured by the TSCS, Ellis found that only the self-criticism subscale was significant ($p < .05$). Low scores on the self-criticism subscale generally indicate defensiveness and a deliberate attempt to present a favorable picture. This defensiveness may have developed because of the conflict between what was expected and the level at which the students felt they could perform. Nursing students in this study did not differ significantly from the TSCS norms. Ellis found no statistically significant differences between the four classes but she did observe that self-concept levels appeared highest at the beginning of the sophomore year and lowest at the beginning of the senior year. These observations may have been influenced by the realization by the seniors that they would be expected to function more

independently than by sophomores who were not influenced by the prospect of having to perform in the workplace in the very near future. Ellis recommended that nursing educators investigate when nursing education makes the greatest insult on nursing students' self-concept levels.

In a study of graduating seniors from six schools of nursing (three baccalaureate, one associate degree, and two diploma), Meleis and Farrell (1974) looked for biographical and attitudinal differences and similarities. They focused on four areas: intellectual characteristics, leadership, research orientation, and psychosocial outlook and biographical data. They theorized that these attitudinal constructs would transcend any barriers of educational preparation and therefore there would not be significant differences among graduates of the three programs. Using the Barksdale Self-Esteem Index they found all groups to be surprisingly low in how they viewed themselves. The associate degree students had a higher mean (26.18) compared to the means of the diploma (24.38) and baccalaureate (21.77) students. The Barksdale has an optimal self-esteem score of 75.

In seeking to determine the relationship between self-concept and achievement in nursing education, Edmondson (1976) administered the TSCS to 51 students in the third semester of a five-semester diploma nursing education

program. She used four TSCS scores as predictor variables: total positive, total variability, personality integration, and self-actualization; and three criterion variables: clinical grade, theory grade, and standardized achievement test scores. In testing the hypothesis that nursing students who have high scores on self-esteem, self-actualization, and personality integration and low variability scores on the TSCS have higher clinical, theory, and achievement scores than those with scores in the opposite direction, she found that self-concept accounted for little variance associated with clinical and theory grades. A significant positive correlation between self-actualization and the criterion variables was found when the other variables were controlled. Contrary to prediction, the personality integration scale was a significantly negative predictor of the criterion. The other two hypotheses (that the four predictor variables were more predictive of clinical performance than theory or achievement test scores and that there would be significant differences between nonprobationary and probationary students on the four predictor variables) were not supported.

Whiteley (1983) identified two categories of the measures of self-esteem: global and social. Global self-esteem measures self-evaluation across a number of areas

such as feelings of adequacy and worth, feelings of being a "good" or "bad" person, physical appearance, personal skills, and personality. Social self-esteem is a person's sense of adequacy or worth in social interaction with people in general. Social self-esteem taps a single dimension and global self-esteem is multidimensional.

Lewis, Bentley, and Sawyer (1980) found evidence to suggest that the self-esteem construct was related to the personality needs for engaging in behaviors which benefit others (nursing, for example), for seeking and sustaining numerous personal friendships, and for persisting in tasks undertaken (such as nursing education). They administered the Adjective Check List (ACL) and the TSCS to 75 female senior nursing students in a baccalaureate program. Using the total positive score from the TSCS and correlating it with the need scales of the ACL they reported that those who sought positive, caring, and responsible relationships tended to value themselves more highly. A low self-esteem was associated with aggression and the need for emotional support from others.

In looking at the the self-concept of students who completed a community college program as opposed to those who withdrew before completion, Jones (1977) found a higher self-esteem among persisters. More than one-third of noncompleters in this study did not withdraw for academic

reasons. The persisters demonstrated more efficiently organized levels of self-identity and more satisfaction with their self-perception.

Concerned with the statistic that 70% of enrollees at the University of Northern Colorado School of Nursing did not graduate, Achord (1973) attempted to assess the impact of self-concept and anxiety level on baccalaureate nursing students who withdrew and those who continued. Using the TSCS to look for self-concept, self-satisfaction, and identity; the Spielberger Trait Anxiety Inventory; and personal interviews, the investigator determined that self-concept was significantly higher for continuing students than for withdrawing students.

Morrel (1983), in an exhaustive review of self-esteem development and theorists, proposed that self-esteem is never fixedly determined but always changing because of the challenges and opportunities inherent in the developmental processes which occur throughout the life cycle. Self-evaluation changes with positive feedback. The social environment is therefore an important aspect in the development and maintenance of self-esteem. "Deficits in self-esteem which are the results of traumatic failures in early relationships can be overcome by later successes and, conversely, one's optimal reserve of self-esteem can be depleted by failures in later life" (p. 146). During the

aging process self-esteem appears to become less contingent upon the existence of realizable ideals and potentials and more contingent upon the realization of self-esteem potentials as validated in reality.

Render (1973) used three standardized tools and one investigator-designed affective tool with undergraduate and graduate students to determine the relationship between the cognitive and noncognitive variables. The cognitive variable was the final grade for the course. The noncognitive variables assessed were locus of control, self-concept, self-actualization, and affective outcomes (attitudes toward teachers, students, and grades; course in which enrolled; and mastery learning). He found no significant relationship between locus of control, self-concept, and self-actualization to final grades. These variables were however related to students' attitudes and attitudes were significantly related to final grades. Regression analyses indicated that the different variables and learner characteristics combined accounted for more than 35% of the variance in the final grade. Interaction of self-actualization and attitudes provided a prediction equation that accounted for 20% of the variance of final grade.

Mostaghimi (1983) investigated the impact of drugs on self-esteem and achievement of high school students and

found that drug users had lower self-esteem than nonusers. Achievement (reading, mathematics, and language) was also lower for drug users than for nonusers.

Summary

Review of relevant literature indicates the following trends in regard to the four selected psychosocial assets:

1. Social support is probably the newest concept of the four investigated in this study. It has been investigated primarily in relation to illness. The effect of social support as a buffer or a mediator in illness has been proposed. The relationship of social support to academic achievement has not been extensively investigated. The quality and quantity of the support network are characteristics currently being studied.

2. Life change events require individuals to make adaptation/adjustment. Extensive adjustment may precipitate illness or interfere with academic endeavors. Events which are deemed negative or undesirable appear to have greater influence on health and education outcomes.

3. Locus of control is a multidimensional concept developed from social learning theory. Studies indicate that those who evidence internal locus of control are more likely to be realistic in their expectations of themselves and more frequently achieve their educational goals.

4. Self-esteem is a learned construct. It appears that high self-esteem is correlated in a positive direction with academic achievement.

The discrete delineation of these constructs is not evident. Interactive effects have been noted.

CHAPTER 3

METHODOLOGY

This study addressed prediction of success in basic nursing education programs, as defined by grade point average (GPA). Four noncognitive variables--social support, life change events, locus of control, and self-esteem--were examined to determine their inclusion as predictors of success. The exploratory nature of this study precluded the use of hypotheses. However, it was expected that at least some, if not all, of the noncognitive measures would emerge as significant predictors of academic success in nursing programs. A survey research design utilizing demographic information and four noncognitive assessment instruments was used to collect data from students in two associate degree and two baccalaureate degree nursing programs.

In this chapter are described the sample, the research design, the survey instruments, and the descriptive and statistical data analyses.

Sample

The students who were completing their nursing education programs in two associate degree and two baccalaureate degree schools of nursing in one state were

requested to complete questionnaires. Permission to approach the students was secured from the individuals who were responsible for the direction of each program. Programs within one state were selected because all are on the semester system, are public institutions, are accredited by the National League for Nursing, and have been in existence for ten or more years.

The general study parameters were explained to the students to gain their participation in completing the questionnaire. Arrangements were made to use classroom space in the participating institutions either during or following a class session. The data instruments required about one hour to complete. The investigator explained the study and administered the questionnaire. Of a potential population of 312 there were 195 respondents (63%): 83 (43%) associate degree respondents and 112 (57%) baccalaureate degree respondents.

Research Design

A survey format was used to collect data to answer the question regarding the relationship between the selected noncognitive variables and success in basic nursing education. The questionnaire (Appendix A) included demographic information and four instruments to collect data on social support, life change events, locus of control, and self-esteem. The dependent variable, success,

was the self-reported grade point average included in the demographic data. Maxey and Ormsby (1971) reported correlations between self-reported and school-reported grades ranging from .81 to .86 for a sample of 5,775 students. The noncognitive (independent) variables were measured by validated tools, which will be described in the following section.

The survey questionnaire was administered as one instrument with directions for recording information for each section. Anonymity of respondent was protected by omitting individual names and/or significant identification such as social security number. Raw data were coded and transferred to the computer for analysis.

Survey Instruments

The survey questionnaire consisted of five instruments administered at one time. These instruments appear in Appendix A. Pertinent information regarding each instrument along with the subscales from those instruments which were used in this research are described below. The questionnaire included demographic data and instruments to assess social support, life change events, locus of control, and self-esteem.

The instruments to measure the noncognitive variables were drawn from review of psychosocial literature. Psychosocial assets are those abilities that enable

individuals to cope with the demands of life. Those individuals who cope satisfactorily or effectively are generally healthier, happier, and more productive in life.

Demographic Information. The investigator-designed demographic questionnaire includes age, sex, ethnic origin, marital status, number living in the home, parents' education, religious preference, college GPA, nursing GPA, and continuity in the program (see Appendix A). The demographic information was based on categories found relevant in review of literature on prediction of success in nursing.

Social Support. The Norbeck Social Support Questionnaire (NSSQ) (Norbeck, Lindsey, and Carrieri, 1981) was based on Kahn's (1979) conceptual definition of social support as the interpersonal transactions of affect, affirmation, and aid and the inclusion of the convoy as the vehicle through which social support is provided. A convoy is one's personal network of family, friends, and others (Kahn & Antonucci, 1980). The multidimensionality of social support led to a format design that allows respondents to self-administer a tool to determine their personal network and the category of relationship for each person. There are nine questions, two each on the functional properties of social support: affect, affirmation, and aid; and three questions on the network

properties. The instrument measures support perceived to be available to the individual as opposed to other instruments that assess support which one has actually received, that is, tangible support.

The NSSQ (first reported in the literature in 1981) had a one-week test-retest reliability with 75 and 67 subjects of .85 and .92 for the functional items and the network property items. Kendall Tau B correlation coefficients for test-retest scores on the number of categories of persons lost was .83 ($p < .0001$) and for the amount of support lost, .71 ($p < .0001$). Internal consistency intercorrelations ranged from .69 to .98 ($p < .0001$). Cronbach alpha reliabilities were not run on this study sample because not all information was pertinent to all individuals thereby resulting in missing values that precluded doing such an analysis. The developer of the questionnaire found that none of the items was significantly related to the social desirability measure (Marlowe-Crowne Test of Social Desirability, short form) indicating that the NSSQ responses were relatively free from the influence of social desirability response bias. Evidence for concurrent, construct, and predictive validity of the NSSQ was found (Norbeck, Lindsey, and Carrieri, 1983).

Nine subscale scores are obtained with the NSSQ: affect, affirmation, aid, number in network, duration of

contact, frequency of contact, loss, number lost, and amount of support lost. The first three subscales reflect the functional aspects of the social support construct, the second three the network properties, and the final three are a measure of changes in the convoy as reflected by the quality and quantity of loss.

Life Change Events. Responding to research evidence that undesirable events (negative life change) were related more to adaptation to stress than were positive life change events, Sarason (Sarason, Johnson, & Siegel, 1978) developed the Life Experiences Survey (LES) to measure three characteristics of life stress. The LES includes (1) a list of events experienced with some degree of frequency in the population being investigated, (2) provision for the respondent to rate the desirability or undesirability of the events, and (3) indication of the personal impact of the events experienced. The 57-item self-report measure permits respondents to indicate events that have occurred during the previous year. Sarason, et al. selected some of the items from the Schedule of Recent Events (SRE) and modified them to be more specific. Other items were included in the LES because the authors judged them to be events which occurred frequently and might have potentially significant impact on the lives of persons experiencing them. The LES instrument has two portions: one section of 47 items for all

respondents (plus three blank spaces for subjects to list additional events experienced) and a section with 10 items designed primarily for use with students and indicating changes experienced in the academic environment. The respondents rate the desirability and the perceived impact at the time of the occurrence of events on a seven-point Likert scale ranging from extremely negative (-3) to extremely positive (+3). Three scores result from examining the impact ratings: positive change score, negative change score, and total change score. A high stress score, as measured by life events, indicates that the negative events experienced had a high impact on the respondent's life.

Reliabilities were not computed with this study sample because of the magnitude of the missing values (individuals responded to only those incidents from the list which had been experienced). Sarason et al. (1978) found, and other studies confirmed, that positive and negative life change scores were essentially uncorrelated. Sarason's test-retest reliabilities ranged from .56 to .88. Negative and total life change scores correlated significantly and positively with the Spielberger State-Trait Anxiety Inventory and correlated significantly in a negative direction with GPA. The relationships between the LES and the Marlowe-Crowne Social Desirability Scale were nonsignificant suggesting that the LES is relatively free of the influence of social

desirability response bias. The Psychological Screening Inventory (PSI) expression scale correlated positively with the positive life change score. Sarason et al. (1978) interpreted the LES and PSI correlations as providing support for the notion that life stress may be best conceptualized in terms of negative life change. Using Rotter's I-E Scale, Sarason et al. (1978) found that individuals who reported high levels of negative life change were more externally oriented, perceiving themselves as less capable of controlling reinforcement contingencies in their environment.

The three subscores derived from the LES are the negative life change score, the positive life change score, and the total life change score. The negative score is obtained by summing all the negatively indicated impacts (-3, -2, -1) from the events checked within the past year. The positive score is obtained by summing the positively indicated impacts (+3, +2, +1). The total score is derived by combining the negative score (undesirable changes) with the positive score (desirable changes). The scores are an indication of the individual's perception of the amount of adaptation/adjustment required in response to the events experienced.

Locus of Control. Levenson (1974) developed the Internal, Powerful Others, and Chance (I, P, and C) Scales to measure

the multidimensionality of locus of control. The I, P, and C Scales were originally designed as a reconceptualization of Rotter's I-E Scale and are composed of items adapted from Rotter's Scale and statements written specifically to tap the three dimensions of control. The Scales consist of eight items for each of the three areas on a six-point Likert scale. The unified scale of 24 items takes the respondent approximately five minutes to complete. All the statements are phrased to pertain only to the individual subject. They measure the degree to which individuals feel they have control over what happens to themselves and not to people in general. Item analysis indicated that all of the items significantly distinguish between high and low scorers for each of the three scales. Correlations between the Marlowe-Crowne Social Desirability Scale and each of the I, P, and C items were negligible and nonsignificant indicating a lack of social response bias. Internal consistency using the Kuder-Richardson reliabilities yielded reliability coefficients of .64 for the I scale, .77 for the P scale, and .78 for the C scale. Spearman-Brown split-half reliabilities were reported as .62 for the I scale, .66 for the P scale, and .64 for the C scale. Reliabilities, using the Cronbach alpha technique, for this study yielded the following coefficients: I scale = .54; P scale = .68; C scale = .75. The modest

differences may be attributed to sampling fluctuation. One-week interval test-retest reliabilities were .64, .74, and .78, respectively. Mean differences indicated that the I scale ($\underline{M}=35.48$) was significantly different from both the P ($\underline{M}=16.65$) and C ($\underline{M}=13.94$) scales ($\underline{t}=12.41$, $\underline{p}<.001$; and $\underline{t}=13.28$, $\underline{p}<.001$). Correlations among the three scales indicated that the P and C scales correlated moderately with each other ($\underline{r}=.59$, $\underline{p}<.01$). Although both were negatively related to the I scale ($\underline{r}=-.14$, $-.17$, respectively), these results were nonsignificant. Factor analysis (Varimax rotation) revealed almost no overlap of the items on the I, P, and C factors. "High scores on each subscale are interpreted as indicating high expectations of control by the source designated. Low scores reflect tendencies not to believe in that locus of control" (Levenson, 1981, p. 18). If one accepts Lowery's (1981) contention that locus of control and attribution theory are interrelated, it would follow that Levenson's I, P, and C Scales meet the multidimensionality aspect by breaking the external scale into Powerful Others and Chance which puts it more into the realm of causality (part of attribution theory) than the unidimensional scale of Rotter.

The 24 I, P, and C items were randomly placed in the instrument. The three scores (I, P, and C) are composed of eight items each. The value of the response to each item

(-3 to +3) is calculated and then added to 24 so that each scale total will be a positive number. Each scale has a potential range of from 0 to 48. A high scale score indicates high expectation of control by the indicated source, that is, internal, powerful others, or chance. Low scores indicate nonbelief in that locus of control.

Self-Esteem. William Fitts, a humanistic psychologist, is the most widely recognized investigator of the self-concept today (Morrel, 1983). He maintains that "knowledge of the self-concept provides a phenomenological understanding of the person, an index of his state of self-actualization, and a core set of data for predicting his behavior" (Fitts et al, 1971, p. 9). Fitts (1971) conceptualized three principal parts or subselves of the self: self-as-object (Identity Self), self-as-doer (Behavioral Self), and self-as-observer and judge (Judging Self). In 1965, Fitts first published the Tennessee Self Concept Scale (TSCS), an instrument consisting of 100 self-descriptive statements to which the respondent replies on a five-point Likert scale. Although there are numerous categories and subscale scores on the TSCS, only the total positive score will be used in this study. The total positive score represents the self-esteem construct.

The TSCS was normed on a sample of 626 general population subjects, ages 12 to 68 years. Test-retest

reliability, based on a two-week interval, was .92 for the total positive score and ranged from .60 to .90 for all major subscores. Internal consistency for the total positive score in this study revealed a Cronbach alpha of .87. Fitts does not report an internal consistency measure. Intercorrelations of scale scores show that the major dimensions of self-perception (self-esteem, self-criticism, variability, certainty, and conflict) are all relatively independent of each other. "No correlation with social desirability has been reported (although it is likely that it would be fairly high since the desirability of most of the statements is clear)" (Robinson & Shaver, 1973, p. 69). In an attempt to derive the factor structure of the TSCS for typical adults using a larger sample than that for which norms had been established, Hoffman and Gellen (1983) found ten factors accounted for 89% of the original variance. They report "similarities of present findings with previous investigations suggest that the TSCS does measure self-concept for widely differing groups of subjects with considerable invariability and...clear similarity is found for the factor structure of the test among a variety of samples" (Hoffman & Gellen, 1983, p. 1204).

The total positive score is the one TSCS score used in this study. It is derived by summing all the values from the Likert-type statements of 90 of the 100 items on the

instrument. The remaining 10 items constitute the self-criticism scale and do not reflect self-esteem. The total positive score has a potential range of from 90 to 450. The higher the score, the greater is one's self-esteem. The total positive score was used as the self-esteem variable score in this study.

Data Analysis

Raw data were coded and tabulated by the investigator. The demographic data were analyzed to develop a profile of the sample. A Pearson product moment correlation coefficient was determined between the cumulative college grade point average (GPA) and the nursing GPA. Because the correlation was high ($r=.82$) the cumulative college GPA was used as the dependent variable, since this was deemed a better measure of general academic success. High correlation between college GPA and nursing GPA was expected because of the weight of the nursing courses within the total college program as the selected major. T-tests were used to examine differences between the two groups of nursing students (associate degree and baccalaureate degree).

The demographic data were analyzed for the total group and then separately for the associate degree and the baccalaureate degree groups. Comparisons of the groups were examined and are included in Chapter 4.

There were a total of ten scores representing the four independent variables:

Social Support. Three subscales from the NSSQ representing various aspects of the social support construct are:

- a) Total functional score - comprised of affect, affirmation, and aid.
- b) Total network score - comprised of number in network, duration of relationships, and frequency of contact.
- c) Total loss score - number of categories of persons lost, and amount of support lost.

Life Change Events. Three scores were obtained from the

LES:

- a) The positive score indicates the impact of changes that the respondent considers positive.
- b) The negative change score indicates the impact of those life changes considered negative by the respondent.
- c) The total change score represents the total amount of desirable and undesirable change experienced.

Locus of Control. Three scores are derived from the I, P, and C Scales:

- a) The I score measures the extent to which persons believe they have control over their own lives.
- b) The P scale measures the extent to which persons believe that powerful others have control over their lives.
- c) The C scale measures perceptions of control by chance, fate, or luck.

Self-esteem. The total positive score from the TSCS represents an overall level of self-esteem.

Pairwise correlations of the predictor variables with each other and with the criterion variable were determined. Those predictor variables that correlated highly with the dependent variable, but not with each other, were entered into the stepwise multiple regression equation. Multiple regression makes the prediction more powerful than simple regression (Kerlinger, 1973) and provides an overall protection for the alpha level by accurately estimating the probability of a Type I error across the package of independent variables considered simultaneously (Goodwin, 1984). Stepwise multiple regression allows the selection of the independent variable that has the highest correlation

with the dependent variable. The procedure then selects succeeding independent variables that contribute to the variance. The process continues until a statistical test of significance strikes a variable that does not contribute significantly to the coefficient of determination, R square (Kerlinger, 1973).

Univariate and multivariate analyses using the Statistical Package for the Social Sciences (SPSS-X) programs were performed. The specific analyses used were: frequencies, summary statistics, t-test, crosstabs, Pearson correlation, reliabilities, and stepwise multiple regression. Stepwise multiple regression was used to determine how well the independent variables (social support, life change events, locus of control, and self-esteem) predicted success (GPA). The dependent variable (cumulative college GPA,) was regressed on the independent variables.

In summary, the cumulative college GPA was regressed on the scores and subscores of the four predictor variables to determine prediction of success in nursing education. The use of these variables as predictors of success in nursing could help to decrease attrition and its resulting emotional and financial drain on the end product of nursing education, the employable nursing graduate.

CHAPTER 4

RESULTS AND CONCLUSIONS

This study was an attempt to determine the effect of four noncognitive variables as predictors of success in basic nursing education programs. Using established instruments to assess social support, life change events, locus of control, and self-esteem, and an investigator-designed demographic data sheet, students in two associate degree and two baccalaureate degree nursing programs were utilized. The 195 volunteer respondents (of a potential 312) were in the final semester of their nursing programs. Success, the dependent variable, was the reported cumulative college grade point average (GPA).

The respondents ranged in age from 20 to 52 years ($M=26.5$; $SD=6.5$). The majority were female (92%), unmarried (64%), Caucasian (89%), Protestant (43%), employed (69%) an average of 13 hours per week, and completing the nursing program with the class with which they entered (85%). On a scale of one (much more successful) to four (less successful) the mean was 2.6 for an individual rating of perceived achievement in the program compared to their classmates. Of the 29 students who were completing the nursing program in a delayed manner, the majority (67%) were

only one semester behind their original classmates. The respondents lived in homes with a mean of 2.8 adults and 0.6 children. They reported that their fathers had higher levels of education than their mothers. Data on demographic variables are summarized in Table 1. The reported mean of the cumulative college GPA, 3.06, was significantly higher than the nursing GPA mean of 2.99 ($t=3.14$; $p<.01$).

T-tests and chi-square statistics were used to examine differences on the demographic data between the associate degree and the baccalaureate degree respondents. Results are summarized in Tables 2 and 3. At a nominal alpha level of .05, significant differences were revealed for age, marital status, adults in the home, children in the home, fathers' education, cumulative college GPA, nursing GPA, completion, number of semesters behind, and hours employed. On average, the associate degree group were about five years older than the baccalaureate degree group, were twice as likely to be married, had fewer adults in the home, reported a higher number of children in the home, and were more apt to have interrupted the nursing program so that their completion was delayed. The baccalaureate degree respondents indicated that their fathers had achieved higher levels of education. The baccalaureate degree respondents worked significantly fewer hours per week but there was no significant difference between groups in the number who were

Table 1
Data on Demographic Variables

Variable	Group						
		Associate Degree N=83	SD	Baccalaureate Degree N=112	SD	Total N=195	SD
Age	<u>M</u>	29.36	7.6	24.44	4.5	26.50	6.5
Sex: female		90.4%		93.8%		92.3%	
Origin: White		86.7%		91.1%		89.2%	
Unmarried		47.0%		75.9%		63.6%	
Adults in home	<u>M</u>	2.40	1.0	3.05	1.4	2.77	1.3
Children in home	<u>M</u>	.83	1.0	.44	0.7	.61	0.9
Mother's education ^a	<u>M</u>	3.36	1.1	3.80	1.2	3.61	1.2
Father's education ^a	<u>M</u>	3.47	1.5	4.40	1.4	4.01	1.5
Religion: Protestant		50.6%		36.6%		42.6%	
Completed program on time		77.1%		91.1%		85.1%	
One semester behind		18.1%		4.5%		10.3%	
Achieved no D grades		56.6%		68.8%		63.6%	

Table 1
(Continued)

Variable	Group					
	Associate Degree N=83	SD	Baccalaureate Degree N=112	SD	Total	SD
Achieved no F grades	91.6%		88.4%		89.7%	
No courses repeated	61.4%		72.3%		67.7%	
Employed	75.9%		64.3%		69.2%	
Hours/week employed <u>M</u>	18.09	14.2	8.73	8.5	12.60	12.1
Estimated achievement <u>M</u>	2.72	0.6	2.58	0.7	2.60	0.6
Cumulative GPA <u>M</u>	2.88	0.5	3.19	0.4	3.06	0.4
Nursing GPA <u>M</u>	2.67	0.6	3.23	0.4	2.99	0.6

a: Mother's education and father's education values:
 1 = grade school 2 = some high school
 3 = high school 4 = some college
 5 = college graduate 6 = postgraduate

Table 2
T-tests for Demographic Variable

Variable	Associate Degree	Baccalaureate Degree	<u>t</u>	<u>p</u>
	Mean	Mean		
Age	29.36	24.44	5.64	<.01**
Adults in home	2.40	3.04	-3.62	<.01**
Children in home	.84	.44	3.28	<.01**
Number of D grades	.64	.43	1.75	.08
Number of F grades	.10	.14	-0.80	.42
Number of courses repeated	.58	.45	1.02	.31
Hours employed/week	18.09	8.73	5.65	<.01**
Cumulative GPA (a)	2.88	3.19	-5.21	<.01**
Nursing GPA (a)	2.67	3.23	-8.09	<.01**

(a) GPA (A=4, B=3, C=2, D=1, F=0)

** $p < .01$

Table 3

Chi-square Values of Selected Demographic Variables Between
the Associate Degree and the Baccalaureate Degree Groups

Variable	χ^2	df	p	phi ⁺
Sex	.77	1	.38	.06
Origin	.93	1	.34	.07
Marital status	17.20	1	<.001***	.30
Mothers' education	9.65	5	.09	.22
Fathers' education	21.05	5	<.001***	.33
Religion	4.37	4	.36	.15
Timely completion	7.34	1	<.01**	.19
Number of semesters behind	9.93	2	<.001***	.23
Employed	3.02	1	.08	.12
Estimated achievement	3.19	3	.36	.13

+ = correction for phi coefficient used where tables were
larger than 2 X 2

* p<.05

** p<.01

*** p<.001

employed. There were no significant differences between the groups on sex, origin, religion, mothers' education, number of D grades, number of F grades, employment, number of courses repeated, or the estimate of achievement.

There were significant differences between groups on the cumulative college GPA ($\underline{t}=-5.21$; $\underline{p}<.01$) and on the nursing GPA ($\underline{t}=-8.09$; $\underline{p}<.01$). The baccalaureate degree group had a significantly higher cumulative college GPA ($\underline{M}_b=3.19$; $\underline{M}_a=2.88$) and a significantly higher nursing GPA ($\underline{M}_b=3.23$; $\underline{M}_a=2.67$). The cumulative college GPA was significantly different from the nursing GPA ($\underline{t}=3.14$; $\underline{p}<.01$) and it was significantly correlated with the nursing GPA ($\underline{r}=.82$; $\underline{p}<.01$). Because of the high correlation between the GPAs, the cumulative college GPA was selected as the dependent variable since it was more indicative of the total program performance.

Because the groups differed on some of the demographic characteristics, the independent and dependent variables were subjected to t-tests. T-tests of the 10 independent variables revealed that there were no significant differences between the groups on any of these variables at the .05 level of significance. Therefore, the two groups were combined as one data set for a regression analysis. Descriptive statistics and t-tests comparing groups on the independent and dependent variables are included in Table 4.

Table 4

Summary Statistics for Independent and Dependent Variables

Variable	N	Total Group Mean	SD	Associate Degree Group	SD	Bacca- laureate Degree Mean	SD	t value	p
<u>Independent Variables</u>									
Social support:									
Functional	179	223.5	107.3	220.1	97.3	226.0	114.5	-0.36	.72
Network	174	66.9	32.1	66.7	30.4	67.0	33.5	-0.06	.95
Loss	186	2.0	2.9	2.0	2.8	2.0	2.9	-0.13	.89
Life change events:									
Negative	195	10.9	8.4	11.6	9.5	10.3	7.6	-1.06	.29
Positive	195	6.8	6.0	6.8	6.5	6.8	5.6	.04	.97
Total	195	17.7	10.6	18.4	12.1	17.1	9.2	.87	.39
Locus of control:									
Internal	193	36.2	5.5	37.0	5.4	35.6	5.6	1.75	.08
Powerful others	193	16.7	7.4	16.9	7.0	16.6	7.7	.26	.73
Chance	193	14.6	7.6	14.2	7.6	14.9	7.7	-0.66	.51
Self-esteem	194	349.4	30.8	346.0	28.8	352.0	32.1	-1.34	.18
<u>Dependent Variables</u>									
Grade point average:									
Cumulative	192	3.1	0.4	2.8	0.5	3.2	0.4	-5.21	<.01**
Nursing	194	3.0	0.6	2.7	0.6	3.2	0.4	-8.09	<.01**

** p<.01

The intercorrelations among the independent variables and correlations between the independent and dependent variables are given in Table 5. Social support loss, negative life change events, and self-esteem were the three variables significantly correlated ($p < .05$) with the cumulative college GPA. However, these correlations were relatively low. The remaining 7 variables were not significantly correlated with the dependent variable.

Three scores were obtained from the Norbeck Social Support Questionnaire (NSSQ). The social support functional variable is the sum of the perceived affect, affirmation, and aid (see Appendix A for specific questions). The social support network score indicates the availability of persons to provide support. The third score from the NSSQ reveals an indication of the loss of support. The respondents indicated a mean loss of 2 individuals (from death, separation, or other reasons) during the past year.

T-tests revealed no significant differences between the two groups on the three social support scores. Correlation analyses showed that the functional variable was correlated with the network variable ($r = .94$; $p < .01$) indicating that the larger one's network the greater the support one perceived. The social support loss variable was significantly negatively correlated with the self-esteem variable ($r = -.3$; $p < .01$) and with the cumulative college GPA

Table 5

Intercorrelations of Independent and Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11
1. Social support functional	.94**	.13	-.10	-.05	.05	.03	-.17*	-.08	.08		-.04
2. Social support network		.19*	-.14	-.03	.09	-.02	-.16*	-.06	.02		-.06
3. Social support loss			-.36**	.15*	.38**	-.22**	.05	.11	-.30**		-.14*
4. Life events negative				-.04	-.83**	.15*	-.15*	-.18*	.36**		.17*
5. Life events positive					.60**	.00	-.09	.01	.03		.00
6. Life events total						-.11	.07	.14*	-.28**		-.13
7. Locus of control internal							-.18*	-.22**	.39**		.08
8. Locus of control powerful others								.65**	-.36**		-.07
9. Locus of control chance									-.39**		-.08
10. Self-esteem											.25**
11. Cumulative college GPA											

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

($\underline{r}=-.14$; $\underline{p}=.05$) indicating that the greater one's losses the lower the self-esteem and the GPA.

Three life change events variables from the Life Experiences Survey (LES) are represented by negative, positive, and total scores. The negative score had a mean of 10.88 for the total group. Fifty percent of the group indicated 10 to 39 events within the past year which required adaptation/adjustment and were perceived as having negative (i.e., undesirable) impacts. The respondents had a total group mean for the positive score of 6.79. A range of from 5 to 29 events was indicated by half of the respondents to be favorably (i.e., desirably) viewed. The mean for the total score (the sum of the absolute values of the negative and the positive scores) was 17.67. No significant differences between groups were evident from t-tests on the three life change events variables. The LES negative score was significantly correlated with the self-esteem variable ($\underline{r}=.36$; $\underline{p}<.001$) and with the cumulative college GPA ($\underline{r}=.17$; $\underline{p}=.02$) indicating perhaps that these particular individuals were able to cope with negatively impacting events and yet maintain their self-esteem and course grades.

The three scores from Levenson's I, P, and C Scales are locus of control internal, locus of control powerful others, and locus of control chance. The possible range of scores for each of the scales is 0 to 48. The internal score mean

of 36.22 was higher than the other two scale scores. More than 50% of the total group indicated scores on the internal scale of from 36 to 47. Scores on the powerful others scale ($\underline{M}=16.7$) and the chance scale ($\underline{M}=14.61$) were lower indicating that a greater number of respondents were of an internal locus. Ninety-six percent (186 of 193 respondents) had highest locus of control scores on the internal scale. One could expect that nurses who are often responsible for the lives of others would feel that they had control over their own lives. Scale scores were not as high for the powerful others (to 35) and chance (to 36) as for the internal scale (to 47). There were no significant t-test differences between groups on any of the three locus of control scales. The internal score was significantly positively correlated with the self-esteem variable ($\underline{r}=.39$; $p<.01$) indicating that those who were of an internal locus of control had greater self-esteem. The powerful others score was significantly negatively correlated with the self-esteem variable ($\underline{r}=-.36$; $p<.01$) as was the chance score ($\underline{r}=-.39$; $p<.01$) indicating that those who believed that others or chance had control over their lives and events had a lower self-esteem. The powerful others and chance scales can be considered external locus of control orientations.

The total positive score from the Tennessee Self Concept Scale had a mean of 349.44, indicating that the

respondents had higher self-esteem than the general population. There were no significant differences between groups evident from a t-test. As previously mentioned, the self-esteem variable correlated in a significant manner with the LES negative score, with each of the three locus of control measures, and with cumulative college GPA.

Stepwise multiple regression was used to determine how well the selected noncognitive variables predicted success as determined by cumulative college GPA. Three independent variables correlated significantly with the dependent variable: social support loss ($\underline{r}=-.14$; $\underline{p}=.05$), life change events negative score ($\underline{r}=.17$; $\underline{p}=.02$), and self-esteem ($\underline{r}=.25$; $\underline{p}<.01$). Only those variables were incorporated in the regression analysis to minimize the standard error of estimate. The regression of the cumulative college GPA on the three independent variables accounted for 7% of the variance (Table 6) and was significant at a .01 alpha level. Self-esteem was the first variable to enter the equation and accounted for approximately 6% of the variance ($\underline{p}=.001$). The life change events negative score added a relatively insignificant amount as did the social support loss variable but their contribution was statistically significant. Together the negative life events score and the social support loss score added 1% to the explanation of the

Table 6

Regression of Cumulative College GPA on Predictor Variables

Step	Variable	Multiple R	R ²	R ² change	F	p of <u>F</u>
Total group:						
1	Self-esteem	.239	.057	.057	10.92	.001**
2	Life events negative	.251	.063	.006	5.99	.003**
3	Social support loss	.256	.066	.003	4.17	.007**
Associate degree group:						
1	Self-esteem	.266	.071	.071	5.63	.020*
2	Life events negative	.320	.102	.031	4.16	.020*
3	Social support loss	.320	.102	.000	2.73	.050
Baccalaureate degree group:						
1	Self-esteem	.166	.028	.028	2.95	.089
2	Life events negative	.180	.032	.004	1.72	.185
3	Social support loss	.211	.044	.012	1.59	.197

* p<.05

** p<.01

variance. Using these three variables it was possible to explain 7% of the variance in grade point average. The very low magnitude of the correlations ($r = -.14, .17, \text{ and } .25$) is indicative of the minor predictability of the variables.

Regression analyses were also performed for the associate degree and for the baccalaureate degree groups because the independent measure, cumulative GPA, was significantly different between groups. These analyses revealed that the three predictor variables accounted for 10.2% of the explained variance ($p = .05$) for the associate degree group but only predicted 4.4% of the variance at a nonsignificant level ($p = .20$) for the baccalaureate degree group (Table 6).

Summary

This chapter provided a description of the total group of respondents and the similarities and differences between the associate degree and baccalaureate degree groups. The intercorrelations of independent variables with the dependent variable revealed three potential predictors of success in basic nursing education programs: life change events negative score, the self-esteem variable, and the loss score from the social support variable. Stepwise multiple regression analysis demonstrated that these three variables accounted for 7% of the variance for the total group and 10.2% of the variance for the associate degree

group at the .05 level of probability. There were no significant predictors at the .05 level of probability for the baccalaureate degree group.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

Research on coping with stress indicates that certain psychosocial assets may influence one's coping responses. These assets include, but are not restricted to, social support, life change events, locus of control, and self-esteem. Burgess (1980) states:

there is a general dictum among people helpers which says that in order to become more effective one must begin with one's self. The quality of care given by an individual will be consistent with the kind of person that individual has become. (p. 30)

According to self-theorists, in order to be effective in their relationships with clients and families of clients, people helpers should have positive self-attitudes.

This investigation focused on the identification of noncognitive characteristics of the successful nursing student. The specific research question was: To what extent do the variables social support, life change events, locus of control, and self-esteem contribute to the prediction of success in nursing? Although the nature of this study was exploratory it was anticipated that at least some, if not

all, of the noncognitive variables would predict success in a basic nursing education program.

This study utilized a survey research design. Demographic data (an investigator-designed instrument) and four established instruments to measure the noncognitive variables were administered in a questionnaire format to 195 students in the final semester of their nursing programs. Two associate degree and two baccalaureate degree programs in one state were utilized for data collection. T-tests revealed no significant differences between the associate degree and the baccalaureate degree groups on the 10 independent variables although the two groups demonstrated some differences on demographic data.

Demographic Data

The mean age of the predominantly female respondents in this study was 26.5. The associate degree respondents were significantly older than the baccalaureate degree respondents. This may be a reflection of one of the original reasons for the development of the associate degree programs which was to attract women who wished careers after raising their families. Aldag and Rose (1983), in a 10-year study of students in an associate degree nursing program, found that older students had significantly higher GPAs although there was no significant correlation between age and GPA. This study also found no significant correlation

between age and GPA for the total group. When analyzed separately, there was a significant correlation between age and GPA for the associate degree group but not for the baccalaureate degree group. The more restricted range of age and GPA for the baccalaureate degree group undoubtedly contributed to the nonsignificant correlation for the baccalaureate degree group. Oliver (1985) reported a significant correlation between age and GPA for students in an associate degree program.

Tetreault (1976) found ages 24 to 26 to be most crucial for internalizing values sufficient for persistence in nursing. Those students in the stated age group tended to have higher professional attitudes. In this study the perceived achievement rating was negatively correlated with age indicating that perhaps the older students had set goals for achievement that were not realized. Older students were slightly more internally oriented and expressed slightly higher self-esteem than the younger respondents.

The majority of respondents in this study were unmarried. The percentage, however, was lower than Nash (1977) found and may be a reflection of the younger age group in this study. There were significant differences between the groups on marital status. The associate degree respondents had more than twice as many married students

than the baccalaureate degree respondents. This may confirm that the community college is meeting one of its goals of providing educational access to the community at large and of the trend toward continuing education of nontraditional students.

The education of the parents of the respondents was significantly different between groups. The majority of the mothers of the associate degree respondents had achieved education through high school whereas the majority of the mothers of the baccalaureate degree respondents had education beyond the high school level. A similar case was found for fathers' education: a lower proportion of the fathers of associate degree students had education at the college level as opposed to the fathers of baccalaureate degree respondents. It would appear that those parents who achieved higher education themselves encouraged the same or made that opportunity available to their children in a four-year college.

The associate degree group was significantly different from the baccalaureate group on completion of the program on time, the number of semesters of delay in completion, and the average hours per week employed. The need for employment in order to finance the education may have contributed to the delay in completion reported by the associate degree respondents.

The associate degree respondents indicated that they rated themselves more highly than their baccalaureate counterparts on perceived achievement. However, the baccalaureate degree students had higher cumulative college GPAs than associate degree respondents. It is also interesting to note that the individual estimate of achievement was negatively and significantly correlated with the cumulative college GPA, an external measure of achievement, for the total group as well as for each of the two groups. In judging their achievement in relationship to their peers, the respondents must have considered factors above and beyond their grades. It is possible that there were factors in the clinical component of nursing practice that were more influential in perceived achievement than the grades received in theoretical nursing.

Independent Variables

Social Support. One of the three measures of perceived social support made a significant contribution to the prediction equation. The loss component added less than 1% to the other two significant predictors to the explained variance. Although the loss component contributed significantly to the prediction of the total group, it did not enhance the prediction equation for the associate degree group and it was not a significant predictor for the baccalaureate group. The results of this study differ from

the only other report of the use of social support to predict success in nursing found in the literature to date. Using a different instrument to assess the relationship of social support and GPA for junior and senior level baccalaureate nursing students, Hilbert and Allen (1985) did not find a significant correlation between social support and cumulative college GPA. Much has been written about the social support construct and many instruments developed to assess the construct. Although some measures of social support have been found to correlate with the ability to cope with the stress of illness (Gore, 1978; Nuckolls et al., 1972), the stress of an educational program does not appear to be influenced by the entire social support construct, at least for those individuals who were completing the programs in this study. It is possible that if one looked at completers versus dropouts the evidence of influence of social support might be more apparent. Only the social support loss component was significantly correlated with the dependent variable, cumulative college GPA. It is understandable that the greater one's loss of social support the more difficult it might be to maintain one's concentration and thereby grades in an educational program.

The means for the three social support variables were lower than those reported by Norbeck et al. (1981, 1983)

(see Appendix B). Perhaps these respondents perceived less need for support from others and relied more on themselves. Their preponderance for an internal locus of control may confirm this self-sufficiency. The number of persons listed as supportive is also lower than that reported by Norbeck et al. (1981) and McFarlane et al. (1981). It may be that the confines of an educational program limited the extent of the supportive network of these respondents. Constraint of time may have reduced the number of persons with whom these students felt they could maintain supportive relationships with the resulting consequence of smaller individual networks.

Life Change Events. All three Life Experiences Survey (LES) scores were used in this study because of the exploratory nature of the study. As shown in other studies (Lloyd et al., 1980; Myers et al., 1975; Sarason et al., 1978), the life events negative score in this study was significantly correlated with more variables than was the positive score and it was the only LES score to significantly correlate with the dependent variable in this study, cumulative college GPA. The life events negative variable did enter the regression equation at the .05 probability level but its contribution to the explained variance was negligible for the total group. It did, however, contribute 3.1% to the explained variance for the associate degree group.

Roediger (1983) used the Schedule of Recent Experiences (SRE) and found it contributed minimally to the prediction of GPA for 235 associate degree nursing students. Both the life events negative and total scores exceeded those found by Sarason et al. (1978) (Appendix B). It is interesting to note those differences in terms of the time frame during which the measurements were conducted. Sarason's students were female college sophomores and the respondents in this study were about to graduate. The job market for newly graduated nurses is currently very limited in the geographical area in which this study was conducted and may have led to an inflation in the LES scores of this study sample. On the portion of the LES instrument which allowed respondents to write in events, a number of individuals indicated difficulty finding a job.

Locus of Control. As could be expected, the respondents in this study indicated strong belief in their own control over events in their lives (i.e., internal locus of control). It is known that individuals with internal locus of control have higher achievement, are more perseverant, and less threatened by criticism than are externals. Only four of the 193 respondents on the locus of control instrument were found to have higher powerful others (one respondent) or chance (three respondents) scores than internal scores. Two respondents had equal scores on the internal and powerful

others scales. It could be helpful in terms of prediction of success in basic nursing education programs to compare those who do not complete with those who do successfully complete. While others (Bar-Tal & Bar-Zohar, 1977) have found a significant relationship between grades and locus of control, this study found no significant relationship between any of the three locus of control scales and the cumulative college GPA. The respondents in this study had a mean internal scale score higher than the range of means for similar groups of individuals (see Appendix B).

Self-Esteem. As already noted, self-esteem was the first variable to enter the prediction equation at the .05 probability level and explained the greatest amount of variance for the total group. Self-esteem predicted 7.1% of the variance for the associate degree group but was not significant at the .05 level of probability for the baccalaureate degree group. The respondents in this study had a mean self-esteem higher than that reported by the developer of the TSCS. The mean of this study compares favorably with those contained in other studies of nursing students (Burgess, 1980; Ellis, 1980; Hallal, 1982). Nursing students would appear to have a self-esteem level above that of the general public. If these nurses are to be capable of helping others they should have at least average and perhaps above average self-esteem.

The mediators addressed in the conceptual model presented in this study appear to have merit most particularly for the associate degree students. Although there were no significant differences between the associate degree and the baccalaureate degree groups on the ten (10) independent variables, the interaction of the demographic variables with the independent variables must have influenced the outcome for the associate degree group. The loss of social support, although just reaching significance, was predictive for the associate degree group. The other two dimensions of social support, functional and network support, were not predictive. The negative impact of life change events and self-esteem were predictive for the associate degree group. Perhaps age was a contributing factor. The associate degree group was significantly older than the baccalaureate degree group. As one ages it is conceivable that one experiences more life changes particularly in regard to family and work crises. The associate degree group worked more hours per week than the baccalaureate degree group. These longer hours may have contributed to the lower GPAs achieved by the associate degree group as employment requirements would impinge on time available for studying. It is known that self-esteem is correlated with age. Since the associate degree group was significantly older that may have contributed to the

self-esteem predictability for that group as opposed to the younger group. The only set of variables excluded from the prediction equation was locus of control. Both groups were homogenously internal in locus of control orientation. This restriction probably precluded predictability.

Recommendations for Further Research

The elusiveness of significant predictors of success in nursing education continues. The continued search for those predictors seems warranted. There must be untapped psychosocial assets which can be defined/identified. In light of this, the following recommendations are suggested:

1. Assess differences among the four identified psychosocial assets over time (i.e., entrance into and exit from the program) and between successful and noncompleting students. A more heterogeneous group might help to identify psychosocial factors that influence certain behaviors that lead to eventual success or lack of success in a nursing education program.

2. A longitudinal comparative assessment of several classes using exit interviews may help to determine completion/delay forces. This information could be helpful in counseling students before and during nursing education programs.

3. The use of the nursing licensure examination scores may lead to more accurate prediction than scores obtained prior to completion.

4. The search for or the development of new instruments to measure psychosocial assets in relationship to nursing education appears warranted.

Summary

The profile of the "typical nursing student" which emerged from this study includes the following characteristics: less than 24 years of age, female, unmarried, Protestant, completing the educational program in the expected time frame, a cumulative college GPA of 3.0 or better, and having a higher self-esteem than that in the general population. The typical student did not, however, indicate a particularly high rating of perceived achievement. This investigator would have expected a higher perceived achievement rating from the respondents considering their GPAs and their high self-esteem. These respondents appeared overly critical of their estimate of achievement and one wonders if the looming licensure examination and the limited job market may have influenced this rating.

Self-esteem was found to be the most predictive of the three predictors of success in this study. It is possible

that the other variables may be more influential in an attrition study than in a study of those who were successfully completing an educational program. The nominally predictive self-esteem limits its usefulness, at least in a study where the respondents from two types of programs are considered as one group.

The results of this study indicate that the three predictor variables were of much greater value in relationship to the prediction of success of associate degree students than of those from baccalaureate degree programs.

REFERENCES

- Achord, C. D. (1973). Impact of attrition on self-concept and anxiety level of freshman nursing students. Dissertation Abstracts International, 33, 6166A. (University Microfilms No. 73-10974)
- Aldag, J., & Rose, S. (1983). Relationship of age, American College Testing scores, grade point average, and state board examination scores. Research in Nursing and Health, 6, 69-73.
- Alichnie, M. C. & Bellucci, J. T. (1981). Prediction of freshman students' success in a baccalaureate nursing program. Nursing Research, 30, 49-53.
- American Council on Education Policy Analysis Service - USPHS. (1974). Trends and career changes of college students in the health fields. (DHEW Publication No. HRA 76-54). Washington, DC: U. S. Government Printing Office.
- Anderson, E. R. (1983). Stress and the nursing student. In S. F. Jacobson and H. M. McGrath (Eds.), Nurses under stress (pp. 295-316). New York: Wiley & Sons.
- Bar-Tal, D., & Bar-Zohar, Y. (1977). The relationship between perception of locus of control and academic achievement: Review of some educational implications. Contemporary Educational Psychology, 2, 181-199.
- Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality: A nine-year followup study of Alameda County residents. American Journal of Epidemiology, 109, 186-204.
- Billings, A. G., & Moos, R. H. (1982). Social support and functioning among community and clinical groups: A panel model. Journal of Behavioral Medicine, 5, 295-311.
- Brim, D. G., Jr., & Ryff, C. D. (1980). On the properties of life events. In P. B. Baltes & O. G. Brim, Jr. (Eds.), Life-span development and behavior (pp. 367-388). New York: Academic Press.

- Brown, J. C., & Strickland, B. R. (1972). Belief in internal-external control of reinforcement and participation in college activities. Journal of Consulting and Clinical Psychology, 38, 148.
- Burgess, G. (1980). The self-concept of undergraduate nursing students in relation to clinical performance and selected biographical variables. Journal of Nursing Education, 19(3), 37-44.
- Cassel, J. (1976). The contribution of social environment to host resistance. American Journal of Epidemiology, 104, 107-123.
- Chissom, B. S., & Lanier, D. (1975). Prediction of first quarter freshman GPA using SAT scores and high school grades. Educational and Psychological Measurement, 35, 461-463.
- Chu, J. (1982). Stressful life events, social support and illness in college students. Dissertation Abstracts International, 43, 1235B. (University Microfilms No. 82-20993)
- Clark, B. (1984). What to do when your patient lets slip his grip on reality. Nursing84, 14(7), 50-55.
- Cobb, S. (1976). Social support as a moderator of life stress. Psychosomatic Medicine, 38, 300-314.
- Cobb, S. (1979). Social support and health throughout the life course. In M. W. Riley (Ed.), Aging from birth to death. Boulder, CO: Westview Press.
- DeAraujo, G., VanArsdel, P. J., Jr., Holmes, T. H., & Dudley, D. L. (1973). Life change, coping ability, and chronic intrinsic asthma. Journal of Psychosomatic Research, 17, 359-363.
- Edmondson, M. A. E. (1976). The relationship between self-concept and achievement in nursing education. Dissertation Abstracts International, 37, 1178B. (University Microfilms No. 76-21455)
- Ellis, L. S. (1980). An investigation of nursing student self-concept levels: A pilot survey. Nursing Research, 29, 389-390.
- Fitts, W. H. (1971). A conceptualization of the self concept. In Fitts, Adams et al., The Self Concept and self-actualization. (Monograph No. 3). Nashville, TN: Dede Wallace Center.

- Fitts, W. H. (1972). The self concept and performance. (Monograph No. 5). Nashville, TN: Dede Wallace Center.
- Fitts, W. H., Adams, J. L., Radford, G., Richard, W. C., Thomas, M. M., & Thompson, W. (1971). The self concept and self-actualization. (Monograph No. 3). Nashville, TN: Dede Wallace Center.
- Frerichs, M. (1973). Relationship of self-esteem and internal-external control to selected characteristics of associate degree nursing students. Nursing Research, 22, 350-352.
- Goodwin, L. D. (1984). Increasing efficiency and precision of data analysis: Multivariate vs. univariate statistical techniques. Nursing Research, 33, 247-249.
- Gore, S. (1978). The effect of social support in moderating the health consequences of unemployment. Journal of Health and Social Behavior, 19, 157-165.
- Grant, C. H. (1966). Age differences in self concept from early adulthood through old age. Disseration Abstracts International, 28, 1160B. (University Microfilms No. 67-10663)
- Grant, R. E. (1983). Predicting academic success. In W. L. Holzemer (Ed.), Review of reserach in nursing education (pp. 79-90). Thorofare, NJ: Slack, Inc.
- Grover, P. L., & Smith, D. U. (1981). Academic anxiety, locus of control, and achievement in medical school. Journal of Medical Education, 56, 727-736.
- Grover, P. L., & Tessier, K. E. (1978). Diagnosis and treatment of academic frustration syndrome. Journal of Medical Education, 53, 734-740.
- Hallal, J. C. (1982). The relationship of health beliefs, health locus of control, and self-concept to the practice of breast self-examination in adult women. Nursing Research, 31, 137-142.
- Henderson, V. (1964). The nature of nursing. American Journal of Nursing, 8, 62-68.
- Higgs, Z. R. (1984). Predicting success in nursing: From prototype to pragmatics. Western Journal of Nursing Research, 6, 77-93.

- Hilbert, G. A., & Allen, L. R. (1985). The effect of social support on educational outcomes. Journal of Nursing Education, 24, 48-52.
- Hoffman, R. A., & Gellen, M. I. (1983). The Tennessee Self Concept Scale: A revisit. Psychology Reports, 53, 1199-1204.
- Holohan, D. J., & Moos, R. H. (1982). Social support and adjustment: Predictive benefits of social climate indices. American Journal of Community Psychology, 10, 403-415.
- Jones, F. C. (1977). A comparative study in self concept of Jackson Community College students who remained to completion, April 1974, versus those who withdrew before completion, Fall, 1983. Dissertation Abstracts International, 38, 2509A. (University Microfilms No. 77-23987)
- Johnson, J. H., & Sarason, I. G. (1978). Life stress, depression and anxiety: Internal-external control as a moderator variable. Journal of Psychosomatic Research, 22, 205-208.
- Johnson, W. L. (1974). Admission of men and ethnic minorities to schools of nursing, 1971-1972. Nursing Outlook, 22(.), 45-49.
- Kahn, R. L. (1979) Aging and social support. In M. W. Riley (Ed.), Aging from birth to death. Boulder, CO: Westview Press.
- Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles, and social support. In P. B. Baltes and O. C. Brim, Jr. (Eds.) Life-span development and behavior. New York: Academic Press.
- Kerlinger, F. N. (1973). Foundations of behavior research (2nd ed). New York: Holt, Rinehart and Winston.
- Killinger, L. E., & Boivin, M. J. (1982). Comparison of locus of control among students in a prison setting with students in a private liberal arts college. Psychological Reports, 51, 455-460.
- Knopf, L. (1972). From student to RN: A report of the nurse career-pattern study. (DHEW Publication No. NIH 72-130). Washington, DC: U. S. Government Printing Office.

- Knopke, H. J. (1979). Predicting student attrition in a baccalaureate nursing program. Nursing Research, 28, 224-227.
- Kobasa, S. C. (1979). Stressful life events, personality and health: An inquiry into hardiness. Journal of Personality and Social Psychology, 37, 1-11.
- Kovacs, A. R. (1970). Predicting success in three selected collegiate schools of nursing. Dissertation Abstracts International, 31, 266B. (University Microfilms No. 70-12522).
- Kramer, M. (1974). Reality shock: Why nurses leave nursing. St. Louis: Mosby.
- LaMontagne, L. L. (1984). Children's locus of control beliefs as predictors of preoperative coping behavior. Nursing Research, 33, 76-79, 85.
- LaRocco, J. R., House, J. S., & French, J. R. P., Jr. (1980). Social support, occupational stress, and health. Journal of Health and Social Behavior, 21, 202-218.
- Lefcourt, H. M. (1976). Locus of control: Current trends in theory and research. New York: Wiley.
- Levenson, H. (1973). Multidimensional locus of control in psychiatric patients. Journal of Consulting and Clinical Psychology, 41, 397-404.
- Levenson, H. (1974). Activism and powerful others: Distinctions within the concept of internal-external control. Journal of Personality Assessment, 38, 377-383.
- Levenson, H. (1981). Differentiating among internality, powerful others, and chance. In H. Lefcourt (Ed.), Research with the locus of control construct (Vol. 1). New York: Academic Press.
- Lewis, J., Bentley, C., & Sawyer, A. (1980). The relationship between selected personality traits and self-esteem among female nursing students. Educational and Psychological Measurement, 40, 259-260.
- Lin, N., Dean, A., & Ensel, N. M. (1981). Social support scale: A methodological note. Schizophrenia Bulletin, 7, 73-88.

- Lin, N., Ensel, W. M., Simeone, R. S., & Kuo, N. (1979). Social support, stressful life events, and illness: A model and an empirical test. Journal of Health and Social Behavior, 20, 108-119.
- ° Lloyd, C., Alexander, A. A., Rice, D. G., & Greenfield, H. S. (1980). Life events as predictors of academic performance. Journal of Human Stress, 6(3), 15-25.
- Lowery, B. J. (1981). Misconceptions and limitations of locus of control and the I-E scale. Nursing Research, 30, 294-298.
- MacDonald, A. P., Jr. (1973). Internal-external locus of control. In J. P. Robinson & P. R. Shaver (Eds.), Measures of social psychological attitudes (pp 169-192). Ann Arbor: Institute for Social Research, University of Michigan.
- Maslow, A. H. (1970). Motivation and personality (2nd ed.). New York: Harper and Row.
- Maxey, E. J. & Ormsby, V. J. (1971). The accuracy of self-report information collected on the ACT test battery: High school grades and items of nonacademic achievement. Iowa City, IO: American College Testing Program.
- McFarlane, A. H., Neale, K. A., Norman, G. R., Roy, R. E., & Streiner, D. L. (1981). Methodological issues in developing a scale to measure social support. Schizophrenia Bulletin, 7, 90-100.
- McGrath, R. E. V., & Burkhart, B. R. (1983). Measuring life stress: A comparison of the predictive validity of different scoring systems for the Social Readjustment Rating Scale. Journal of Clinical Psychology, 39, 573-581.
- ° McLaren, A. (1982). Ambition and accounts: A study of working-class women in adult education. Psychiatry, 25, 235-246.
- Meleis, A. I., & Farrell, K. M. (1974). Operation concern: A study of senior nursing students in three nursing programs. Nursing Research, 23, 461-468.
- Miller, P. M., Ingham, J. G., & Davidson, S. (1976). Life events symptoms and social support. Journal of Psychosomatic Research, 20, 515-522.

- Morrell, A. D. (1983). Conscious and unconscious aspects of self-esteem. Dissertation Abstracts International, 44, 1970B. (University Microfilms No. 83-23543)
- Mostaghimi, M. R. (1983). The impact of drugs on self-esteem and achievement of high school students. Dissertation Abstracts International, 44, 1059B. (University Microfilms No. 83-18575)
- Myers, J. K., Lindenthal, J. J., & Pepper, M. P. (1975). Life events, social integration and psychiatric symptoms. Journal of Health and Social Behavior, 16, 421-429.
- Nash, P. M. (1975). Evaluation of employment opportunities for newly licensed nurses. (DHEW Publishing No. HRA 75-12). Washington, DC: U. S. Government Printing Office.
- Nash, P. M. (1977). Student selection and retention in nursing schools. (DHEW Publishing No. HRA 78-5). Washington, DC: U. S. Government Printing Office.
- Nuckolls, K. B., Cassel, J., & Kaplan, B. H. (1972). Psychosocial assets, life crisis, and the prognosis of pregnancy. American Journal of Epidemiology, 95, 431-441.
- Neaves, J. J. (1982). The relationship of locus of control to independent decision-making in nursing students. Journal of Nursing Education, 21, 36.
- Norbeck, J. S., Lindsey, A. M., & Carrieri, V. L. (1981). The development of an instrument to measure social support. Nursing Research, 30, 264-269.
- Norbeck, J. S., Lindsey, A. M., & Carrieri, V. L. (1983). Further development of the Norbeck Social Support Questionnaire: Normative data and validity testing. Nursing Reserach, 32, 4-9.
- Oliver, D. H. (1985). The relationship of selected admission criteria to the academic success of associate degree nursing students. Journal of Nursing Education, 24, 197-206.
- Paredes, F. C. (1982). The relationship of psychological resources and social support to occupational stress and burnout in hospital nurses. Dissertation Abstracts International, 43, 881B. (University Microfilm No. 82-17213).

- Pavalko, R. M. (1969). Recruitment to nursing: Some reserach findings. Nursing Research, 18, 72-76.
- Pearlin, L. I., Lieberman, M. A., Menaghan, E. P., & Mullen, J. T. (1981). The stress process. Journal of Health and Social Behavior, 22, 337-356.
- Pesznecker, B. L. & McNeil, J. (1975). Relationship among health habits, social assets, psychological well-being, life change and alterations in health status. Nursing Reserach, 24, 442-447.
- Pinneau, S. R., Jr. (1975). Effects of social support on psychological and physiological strains. Dissertation Abstracts International, 36, 5359B. (University Microfilms No. 76-09491)
- Rahe, R. H. (1978). Life change measurement clarification. Psychosomatic Medicine, 40, 95-98.
- Reed, C. L., Feldhusen, J. F., & VanMordfrans, A. P. (1973). Prediction of grade point averages using cognitive and noncognitive predictor variables. Psychological Reports, 32, 143-148.
- Render, G. F. (1973). The relationship between locus of control, self-concept, self-actualization and cognitive and affective outcomes of instruction. Dissertation Abstracts International, 34, 4886A. (University Microfilms No. 74-05039)
- Robinson, J. P. & Shaver, P. R. (Eds.). (1973). Measures of social psychological attitudes. Ann Arbor: Institute for Social Reserach, University of Michigan.
- Roediger, J. L. (1983). Relationship of self-concept, life change, stress, and student attrition in community college nursing programs. Dissertation Abstracts International, 43, 3825A. (University Microfilms No. 83-08640)
- Rotter, J. B. (1954). Social learning theory and clinical psychology. Englewood Cliffs, NJ: Prentice-Hall.
- Sandler, I. N. & Lakey, B. (1982). Locus of control as a stress moderator: The role of control perceptions and social support. American Journal of Community Psychology, 10, 65-80.

- Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the life experiences survey. Journal of Consulting and Clinical Psychology, 46, 932-946.
- Sarason, I. G. & Sarason, B. R. (1982). Concomitants of social support: Attitudes, personality characteristics, and life experiences. Journal of Personality, 50, 331-344.
- Schuette, C. G., Sinnett, E. R., & Downey, R. G. (1980). A life-change measure as a screening device for psychological services among three collegiate groups. Psychological Reports, 47, 559-565.
- Selye, H. (1976). The stress of life. New York: McGraw-Hill.
- Skinner, H. A. & Lei, H. (1980). The multidimensional assessment of stressful life events. Journal of Nervous and Mental Disease, 169, 535-541.
- Stevens, K. R. (1982). The relationship of locus of control, sex-role identity, and assertiveness in baccalaureate nursing students. Dissertation Abstracts International, 43, 3539B. (University Microfilms No. 83-07028)
- Tausig, M. (1982). Measuring life events. Journal of Health and Social Behavior, 23, 52-64.
- Tetreault, A. I. (1976). Selected factors associated with professional attitudes of baccalaureate nursing students. Nursing Research, 25, 49-53.
- Toves, C., Schill, T., & Ramanaiah, N. (1981). Sex differences, internal-external control, and vulnerability to life stress. Psychological Reports, 49, 508.
- Wan, T. T. H. (1982). Stressful-life-events, social support networks, and gerontological health. Lexington, MA: Lexington Books.
- Whiteley, B. E., Jr. (1983). Sex role orientation and self-esteem: A critical meta-analytic review. Journal of Personality and Social Psychology, 44, 765-778.
- Wren, G. (1971). Some characteristics of freshman students in baccalaureate, diploma, and associate degree nursing programs. Nursing Research, 20, 167-172.

APPENDIX A

Data Collection Instrument:

Demographic Information

Social Support Questionnaire

Life Change Events

Self-esteem

Demographic directions: Fill in the blank or circle the most appropriate answer.

1. Birth date: Month _____, day _____, year _____
2. Sex: Female Male
3. Ethnic origin: White Black Other _____
4. Marital status: Married Unmarried
5. Number of persons living in the home: adults (18 and older) _____; children (under 18) _____
6. Check highest level of parents' education

	<u>mother</u>	<u>father</u>
grade school	_____	_____
some high school	_____	_____
high school	_____	_____
some college	_____	_____
college graduate	_____	_____
postgraduate	_____	_____
7. Religious preference: _____
8. What was your cumulative college GPA at the end of last semester to the nearest tenth? ____.
9. What was your nursing GPA to the nearest tenth? ____.
10. Will you complete the nursing program with the class in which you entered? Yes No
If no, check how far behind you are:

one semester	_____	two semesters	_____	three semesters	_____	four semesters	_____
more than four semesters	_____						
11. Number of courses in which you achieved D grades in college: _____
12. Number of courses in which you achieved F grades in college: _____
13. Number of courses repeated in college: _____
14. Are you currently employed: Yes No If yes, average number of hours employed per week: _____
15. In relation to those with whom you will graduate, how would you rate your success in this program?

much more successful	more successful	as successful	less successful
----------------------	-----------------	---------------	-----------------

Instructions:

For each person you listed, please answer the following questions by writing in the number that applies.

<u>Question 1</u>	<u>Question 2</u>	<u>Question 3</u>	<u>Question 4</u>
How much does this person make you feel liked or loved?	How much does this person make you feel respected or admired?	How much can you confide in this person?	How much does this person agree with or support your thoughts?
1=not at all 2=a little 3=moderately 4=quite a bit 5=a great deal	1=not at all 2=a little 3=moderately 4=quite a bit 5=a great deal	1=not at all 2=a little 3=moderately 4=quite a bit 5=a great deal	1=not at all 2=a little 3=moderately 4=quite a bit 5=a great deal
1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____

Instructions:

For each person you listed, please answer the following questions by writing in the number that applies.

<u>Question 5</u>	<u>Question 6</u>	<u>Question 7</u>	<u>Question 8</u>
If you needed to borrow \$10, a ride to the doctor, or some other immediate help, how much could this person usually help?	If you were confined to the bed for several weeks, how much could this person help you?	How long have you known this person?	How frequently do you usually have contact with this person? (phone calls, visits, or letters)
1=not at all 2=a little 3=moderately 4=quite a bit 5=a great deal	1=not at all 2=a little 3=moderately 4=quite a bit 5=a great deal	1=0mos. or less 2=6mos to 12mos 3=1yr to 2yrs 4=2yrs to 5yrs 5=more than 5yrs	1=daily 2=weekly 3=monthly 4=a few times each year 5=once a year or less
1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ 12. _____ 13. _____ 14. _____ 15. _____ 16. _____ 17. _____ 18. _____ 19. _____ 20. _____

SOCIAL SUPPORT QUESTIONNAIRE

9. During the past year, have you lost any important relationships due to moving, a job change, divorce or separation, death, or some other reason?

- _____ No
 _____ Yes

IF YES:

9a. Please indicate the number of persons from each category who are no longer available to you.

- _____ spouse or partner
 _____ family members or relatives
 _____ work or school associates
 _____ neighbors
 _____ health care providers
 _____ counselor or therapist
 _____ minister/priest/rabbi
 _____ other: _____

9b. Overall, how much of your support was provided by these people who are no longer available to you?

- _____ none at all
 _____ a little
 _____ a moderate amount
 _____ quite a bit
 _____ a great deal

Please read all directions on this page before starting.

Please list each significant person in your life under Personal Network. Consider all the persons who provide personal support for you or who are important to you.

Use only first names or initials and then indicate the relationship, as in the following example.

Example:

First Name or Initials	Relationship
1. _____	_____
2. _____	_____
3. _____	_____

Use the following list to help you think of the people important to you and list as many people as apply to your case.

- spouse or partner
- family members or relatives
- friends
- work or school associates
- neighbors
- health care providers
- counselor or therapist
- minister/priest/rabbi
- other

=====

Personal Network

First Name or Initials	Relationship
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____
8. _____	_____
9. _____	_____
10. _____	_____
11. _____	_____
12. _____	_____
13. _____	_____
14. _____	_____
15. _____	_____
16. _____	_____
17. _____	_____
18. _____	_____
19. _____	_____
20. _____	_____

Life change events directions: Listed below are a number of events which sometimes bring about changes in the lives of those who experience them and which necessitate social readjustment. Please check (X) those events which you have experienced in the recent past and indicate the time period during which you have experienced each event. Also, please circle the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.

	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
1. Marriage	___	___	-3	-2	-1	0	+1	+2	+3
2. Detention in jail or comparable institution	___	___	-3	-2	-1	0	+1	+2	+3
3. Major change in sleeping habits (much more or much less sleep)	___	___	-3	-2	-1	0	+1	+2	+3
4. Death of a spouse	___	___	-3	-2	-1	0	+1	+2	+3
5. Death of close family member:									
a. mother	___	___	-3	-2	-1	0	+1	+2	+3
b. father	___	___	-3	-2	-1	0	+1	+2	+3
c. brother	___	___	-3	-2	-1	0	+1	+2	+3
d. sister	___	___	-3	-2	-1	0	+1	+2	+3
e. grandmother	___	___	-3	-2	-1	0	+1	+2	+3
f. grandfather	___	___	-3	-2	-1	0	+1	+2	+3
g. other (specify)	___	___	-3	-2	-1	0	+1	+2	+3
6. Major change in eating habits (much more or much less food intake)	___	___	-3	-2	-1	0	+1	+2	+3
7. Foreclosure on mortgage or loan	___	___	-3	-2	-1	0	+1	+2	+3
8. Death of close friend	___	___	-3	-2	-1	0	+1	+2	+3
9. Outstanding personal achievement	___	___	-3	-2	-1	0	+1	+2	+3
10. Minor law violations (traffic ticket, disturbing peace, etc)	___	___	-3	-2	-1	0	+1	+2	+3
11. Male: Wife/girlfriend's pregnancy	___	___	-3	-2	-1	0	+1	+2	+3
12. Female: pregnancy	___	___	-3	-2	-1	0	+1	+2	+3
13. Changed work situation (different work responsibi- lity, major change in working conditions, working hours, etc)	___	___	-3	-2	-1	0	+1	+2	+3
14. New job	___	___	-3	-2	-1	0	+1	+2	+3
15. Sexual difficulties	___	___	-3	-2	-1	0	+1	+2	+3

	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
16. Serious illness or injury of close family member:									
a. father	—	—	-3	-2	-1	0	+1	+2	+3
b. mother	—	—	-3	-2	-1	0	+1	+2	+3
c. sister	—	—	-3	-2	-1	0	+1	+2	+3
d. brother	—	—	-3	-2	-1	0	+1	+2	+3
e. grandfather	—	—	-3	-2	-1	0	+1	+2	+3
f. grandmother	—	—	-3	-2	-1	0	+1	+2	+3
g. spouse	—	—	-3	-2	-1	0	+1	+2	+3
h. other (specify)	—	—	-3	-2	-1	0	+1	+2	+3
17. Trouble with employer (in danger of losing job, being suspended, demoted, etc.)	—	—	-3	-2	-1	0	+1	+2	+3
18. Trouble with in-laws	—	—	-3	-2	-1	0	+1	+2	+3
19. Major change in financial status (a lot better or worse off)	—	—	-3	-2	-1	0	+1	+2	+3
20. Major change in closeness of family members (increased or decreased closeness)	—	—	-3	-2	-1	0	+1	+2	+3
21. Gaining a new family member (birth, adoption, family member moving in, etc)	—	—	-3	-2	-1	0	+1	+2	+3
22. Change of residence	—	—	-3	-2	-1	0	+1	+2	+3
23. Marital separation from mate (due to conflict)	—	—	-3	-2	-1	0	+1	+2	+3
24. Major change in church activities (increased, decreased attendance)	—	—	-3	-2	-1	0	+1	+2	+3
25. Marital reconciliation with mate	—	—	-3	-2	-1	0	+1	+2	+3
26. Major change in number of arguments with spouse (a lot more or a lot less arguments)	—	—	-3	-2	-1	0	+1	+2	+3
27. Married male: Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc)	—	—	-3	-2	-1	0	+1	+2	+3
28. Married female: Change in husband's work (loss of job, beginning new job, retirement, etc)	—	—	-3	-2	-1	0	+1	+2	+3
29. Major change in unusual type and/or amount of recreation	—	—	-3	-2	-1	0	+1	+2	+3
30. Borrowing more than \$10,000 (buying home, business)	—	—	-3	-2	-1	0	+1	+2	+3
31. Borrowing less than \$10,000 (car, TV, school loan, etc)	—	—	-3	-2	-1	0	+1	+2	+3

	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
32. Being fired from job	—	—	-3	-2	-1	0	+1	+2	+3
33. Male: Wife/girlfriend having abortion	—	—	-3	-2	-1	0	+1	+2	+3
34. Female: Having abortion	—	—	-3	-2	-1	0	+1	+2	+3
35. Major personal illness or injury	—	—	-3	-2	-1	0	+1	+2	+3
36. Major change in social activities, e.g., parties, movies, visiting (increased or decreased participation)	—	—	-3	-2	-1	0	+1	+2	+3
37. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc)	—	—	-3	-2	-1	0	+1	+2	+3
38. Divorce	—	—	-3	-2	-1	0	+1	+2	+3
39. Serious injury or illness of close friend	—	—	-3	-2	-1	0	+1	+2	+3
40. Retirement from work	—	—	-3	-2	-1	0	+1	+2	+3
41. Son or daughter leaving home (marriage, college, etc)	—	—	-3	-2	-1	0	+1	+2	+3
42. Ending of formal schooling	—	—	-3	-2	-1	0	+1	+2	+3
43. Separation from spouse (due to work, travel, etc)	—	—	-3	-2	-1	0	+1	+2	+3
44. Engagement	—	—	-3	-2	-1	0	+1	+2	+3
45. Breaking up with boyfriend/girlfriend	—	—	-3	-2	-1	0	+1	+2	+3
46. Leaving home for the first time	—	—	-3	-2	-1	0	+1	+2	+3
47. Reconciliation with boyfriend/girlfriend	—	—	-3	-2	-1	0	+1	+2	+3
Other recent experiences which have had an impact on your life. List and rate.									
48. _____	—	—	-3	-2	-1	0	+1	+2	+3
49. _____	—	—	-3	-2	-1	0	+1	+2	+3
50. _____	—	—	-3	-2	-1	0	+1	+2	+3
51. Beginning a new school experience at a higher academic level (college, graduate school, professional school, etc)	—	—	-3	-2	-1	0	+1	+2	+3
52. Changing to a new school at same academic level (undergraduate, graduate, etc)	—	—	-3	-2	-1	0	+1	+2	+3

	0 to 6 mo	7 mo to 1 yr	extremely negative	moderately negative	somewhat negative	no impact	slightly positive	moderately positive	extremely positive
53. Academic probation	—	—	-3	-2	-1	0	+1	+2	+3
54. Being dismissed from dormitory or other residence	—	—	-3	-2	-1	0	+1	+2	+3
55. Failing an important exam	—	—	-3	-2	-1	0	+1	+2	+3
56. Changing a major	—	—	-3	-2	-1	0	+1	+2	+3
57. Failing a course	—	—	-3	-2	-1	0	+1	+2	+3
58. Dropping a course	—	—	-3	-2	-1	0	+1	+2	+3
59. Joining a fraternity/sorority	—	—	-3	-2	-1	0	+1	+2	+3
60. Financial problems concerning school (in danger of not having sufficient money to continue)	—	—	-3	-2	-1	0	+1	+2	+3

Locus of control directions: The following are a series of attitude statements. Each represents a commonly held opinion. There are no right or wrong answers. You will probably agree with some items and disagree with others. Read each statement carefully. Then indicate the extent to which you agree or disagree by circling the number following each statement. First impressions are usually best. Read each statement, decide if you agree or disagree and the strength of your opinion, and then circle the appropriate number.

	strongly disagree	disagree somewhat	slightly disagree	slightly agree	agree somewhat	strongly agree
1. Whether or not I get to be a leader depends mostly on my ability.	-3	-2	-1	+1	+2	+3
2. To a great extent my life is controlled by accidental happenings.	-3	-2	-1	+1	+2	+3
3. I feel like what happens in my life is mostly determined by powerful people.	-3	-2	-1	+1	+2	+3
4. Whether or not I get into a car accident depends mostly on how good a driver I am.	-3	-2	-1	+1	+2	+3
5. When I make plans, I am almost certain to make them work.	-3	-2	-1	+1	+2	+3
6. Often there is no chance of protecting my personal interests from bad luck happenings.	-3	-2	-1	+1	+2	+3
7. When I get what I want, it's usually because I'm lucky.	-3	-2	-1	+1	+2	+3

	strongly disagree	disagree somewhat	slightly disagree	slightly agree	agree somewhat	strongly agree
8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.	-3	-2	-1	+1	+2	+3
9. How many friends I have depends on how nice a person I am.	-3	-2	-1	+1	+2	+3
10. I have often found that what is going to happen will happen.	-3	-2	-1	+1	+2	+3
11. My life is chiefly controlled by powerful others.	-3	-2	-1	+1	+2	+3
12. Whether or not I get into a car accident is mostly a matter of luck.	-3	-2	-1	+1	+2	+3
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	-3	-2	-1	+1	+2	+3
14. It is not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	-3	-2	-1	+1	+2	+3
15. Getting what I want requires pleasing those people above me.	-3	-2	-1	+1	+2	+3
16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	-3	-2	-1	+1	+2	+3
17. If important people were to decide they didn't like me, I probably wouldn't make many friends.	-3	-2	-1	+1	+2	+3
18. I can pretty much determine what will happen in my life.	-3	-2	-1	+1	+2	+3
19. I am usually able to protect my personal interests.	-3	-2	-1	+1	+2	+3
20. Whether or not I get into a car accident depends mostly on the other driver.	-3	-2	-1	+1	+2	+3
21. When I get what I want, it's usually because I worked hard for it.	-3	-2	-1	+1	+2	+3
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	-3	-2	-1	+1	+2	+3
23. My life is determined by my own actions.	-3	-2	-1	+1	+2	+3
24. It's chiefly a matter of fate whether or not I have a few friends or many friends.	-3	-2	-1	+1	+2	+3

Sample Items from the Tennessee Self Concept Scale
(TSCS)

Because the TSCS is a commercial instrument only sample items are reproduced below.

Items are measured on the following scale:

Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
1	2	3	4	5

- 3. I am an attractive person.
- 25. I am satisfied with my moral behavior.
- 36. I have trouble doing the things that are right.
- 47. I despise myself.
- 53. I do things without thinking about them first.

APPENDIX B

Table comparing means of respondents
of this study with those on whom
the instruments were normed

Table B-1

Comparison of Means of Respondents of This Study and
Reported/Normed Groups on Independent Variables

Variables	This Study	Reported by Authors
Social Support:		
Functional	223.53	females: 281.18; males: 263.26
Network	66.9	111.93 107.68
Loss	2.0	2.69 .78
(Source: Norbeck et al., 1981, 1983)		
Life Change Events:		
Negative	10.88	7.04 6.22
Positive	6.79	9.57 9.74
Total	21.93	16.61 15.97
(Source: Sarason et al., 1978) (Male and female undergraduates)		
Locus of Control:		
Internal	36.22	32.98 to 36.07
Powerful Others	16.70	16.47 to 24.00
Chance	14.61	15.52 to 19.28
(Source: Levenson, 1981) (Male and female undergraduates)		
Self-esteem	349.44	345.57
(Source: Fitts, 1965) (General population subjects)		

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