

THE PROCESS OF SELECTIVE AND NONSELECTIVE ADMISSIONS
IN MASTERS' NURSING PROGRAMS

A THESIS
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF SCIENCE
IN THE GRADUATE SCHOOL OF THE
TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING

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DENTON, TEXAS

AUGUST 1979

The Graduate School
Texas Woman's University

Denton, Texas

July 17, 1979

We hereby recommend that the thesis prepared under
our supervision by Elaine Mary Renola
entitled "The Process of Selective and Nonselective
Admissions in Masters' Nursing Programs"

be accepted as fulfilling this part of the requirements for the Degree of
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ACKNOWLEDGMENTS

The author wishes to express her appreciation to her thesis committee chairman, Carolyn M. Adamson, and committee members, Mary Elizabeth Benedict and Kathryn S. Sanchez, for their valuable advice and guidance throughout the course of this work.

The author wishes to express her gratefulness to her parents, Emily and John Traub, for their direction and support throughout the years.

The author wishes to express sincerely her personal gratitude to her husband, Gary, for his continuous encouragement, understanding, and patience throughout the course of this work.

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CHAPTER 1

INTRODUCTION

The need for more nurses educated at the master's level has been well established. To meet this need an increasing number of graduate nursing programs have developed to "prepare leaders in nursing . . . who will influence the practice and study of nursing by teaching, administering, and investigating professional practice" (Characteristics of Graduate Education, 1974, p. 11). In nursing literature, however, limited attention has been given to the process of selecting students qualified to achieve these professional goals.

Presently, graduate nursing programs demonstrate great diversity in admission practices, consequently permitting entrance of students with a variety of educational and professional backgrounds. The concern arises as to how so many masters' nursing programs can admit students of dissimilar backgrounds and yet graduate equally qualified master's-prepared nurses.

Two divergent views are supported by educators in response to this dilemma of student selection. Proponents of a selective admission process prefer to use objective and subjective criteria to assess the potential academic

performance of applicants. This information provides a basis of evaluation from which to identify those students most suited for study and those most likely to graduate and fulfill the role of master's-prepared nurses.

Educators in favor of a nonselective process encourage application to graduate programs by all nurses. They seem less concerned with various admission criteria and believe applicants should not be denied the opportunity for professional advancement.

The controversy over admission processes demonstrated the need to examine masters' nursing programs in relation to these processes. From this study differences in program attrition rates and levels of success may be identified according to type of admission process.

Statement of the Problem

This study posed the following question: Do masters' nursing programs with selective admission processes differ from programs with nonselective admission processes with respect to attrition and final cumulative masters' grade point averages?

Purposes

The purposes of this study were:

1. To determine if differences in attrition rates of masters' nursing programs can be related to type of admission process.
2. To determine if differences in cumulative masters' grade point averages can be related to type of admission process.

Background and Significance

Many colleges and universities adopt selection policies to maintain high enrollment, to retain financial support, or simply to handle the increasing number of qualified applicants. Thus the practice of selective admissions is not unique to graduate nursing education.

In nursing, each program reserves the right to determine the basis for selecting its own students so long as the policies are in accord with the philosophy and objectives of the parent institution (Trends, Issues and Implications, 1978). The wide variety of criteria used for selection may be chosen as predictors of probable academic success and achievement of professional goals in nursing.

Traditionally, criteria used to predict academic success have revolved around student grades. In some schools this remains the sole index of performance while

in other institutions creative abilities, decision-making abilities and communication skills have been assessed during screening of qualified applicants. The inclusion of these criteria by schools demonstrates recognition of the lack of a high degree of comparability of scholastic aptitude and the need for evaluation of nonintellective factors (Lavin, 1965).

Admission processes thus are identified as selective or nonselective in nature. Selective admissions are incorporated into program policies in order to admit only those students who show the greatest promise of completing courses successfully. Since it is economically infeasible to enroll all students, various admission criteria are utilized to minimize attrition and maximize academic potential of the more highly qualified student (Franklin, 1975). Nonselective admission processes are based on the right of all persons to pursue any level of education desired. Institutions of higher learning should not be accessible only to academically superior students; neither should admission officers rely solely on past achievement to predict future achievement (Lavin, 1965).

The practices of selective and nonselective admissions usually are considered in relation to attrition. It is assumed that less selective programs would experience high attrition, yet there continues to be substantial attrition

even in selective schools (Smeltzer, 1968). Though attrition can never be completely eliminated, all universities attempt to admit, retain and graduate students who will utilize the educational opportunities provided for them.

Franklin (1975) investigated the relationship of selective and nonselective admission practices in New York State junior college nursing programs to attrition, grade point averages, and scores on state board examinations. Her study showed a significant difference between selective and nonselective programs in overall attrition, attrition due to academic failure and rate of failure on state board examinations. The results of this study strongly support the need to examine these relationships at all levels of nursing education.

The research was based on the findings of Franklin's (1975) study and the results of other research studies which identified various admission criteria. The intent of this study was to determine if certain admission criteria are significantly related to success in graduate nursing education.

Theoretical Framework

The subject of prediction of academic achievement is addressed in the fields of psychology, sociology, and

education. An increased concern regarding the prediction of achievement has developed over the last few decades in response to increased student population, increased numbers of highly qualified students, and the proliferation of specialized curricula.

Initial research on prediction of success focused on the traditional criterion of performance--grades. The ability to achieve good grades kept students in school and was reflective of some degree of motivation. Thus grade point averages became an appropriate selection measure. There exists, however, a lack of comparability of grades due to instructor variation, grade inflation, and grading variations leading to a reduction in the validity of grade point averages to predict future achievement (Selective Admissions, 1977). Also, the emphasis of student selection based on cognitive abilities has not reliably demonstrated predictions of performance.

Currently, achievement is viewed as a function of the characteristics of both the individual and the environment. The prediction of achievement therefore encompasses the "interaction of psychological variables of ability, personality, and motivation" (Cattell & Burcher, 1968, p. 145). These variables are known to be relevant to the prediction of performance although the relationships between these predictors may not always be clear. Also, failure to isolate

the right variables, measurement error in the predictors, or uncontrolled sources of variation in the predictor variables reduce the absolute significance of the relationships between the predictors and performance (Lavin, 1965). Performance assessment, according to Knowles (1977), cannot be quantitatively measured given the full range of behaviors required for performing any set of functions. Rather the concern should be the objective identification of the present level of performance in view of future desired behaviors.

The selection of predictor variables is dependent upon the educational philosophy and objectives of the institution and criteria proven to be indicators of previous students' success (Selective Admissions, 1977). This represents a concern for the predictive validity of these variables to ensure the outcome behavior of success. "In the study of predictive validity the relationship between prediction variables and the criterion is usually ascertained by correlation" (Dressel, 1961, p. 307). A meaningful correlation thus represents a valid association between the predictor variables and the outcome criterion (Plapp, 1965).

Support for the concept of predictive validity can be drawn from behavioral theories which indicate that given certain basic characteristics, past performance can be

correlated with future performance. This does not suggest causality, since it is difficult to state that success at one level causes success at another level (Lavin, 1965). However, through correlation of selected variables with performance, a relationship can be specified which indicates the predictability of achievement.

"Prediction is a tool of educational guidance and depends upon the educational system and values implicit in educational goals" (Cattell & Burcher, 1968, p. 8). Predictor variables which focus on the abilities of performance therefore are only significant if relevant to the individual institution. Moreover, when predictions concern behavior "it is impossible to anticipate all the conditions and forces to which the behaving person will be exposed at the time for which the prediction is made" (Escalona & Heider, 1959, p. 5).

Hypotheses

The following hypotheses were formulated with respect to attrition rates and levels of success in selective and nonselective masters' nursing programs.

1. There is a higher student attrition rate in masters' nursing programs utilizing nonselective admission processes than in programs utilizing selective admission processes.

2. There is a higher cumulative master's grade point average for students from programs utilizing selective admission processes than for students from programs using nonselective admission processes.

Definitions of Terms

The following definitions of terms were formulated for this study.

Attrition--withdrawal of students from school prior to program completion and graduation.

Cumulative grade point average--a computed academic rating of a student's earned letter grades. It is calculated by assigning a numerical value to each grade such that A = 4.0, B = 3.0, C = 2.0, D = 1.0, F = 0.0, and dividing the sum of the numbers by the number of credit hours attempted.

Nonselective admission process--the selection of students based on R.N. licensure, or proof of intent, graduation from a baccalaureate institution with an upper division major in nursing, and a minimum grade point average.

Selective admission process--the selection of students based on R.N. licensure, or proof of intent, graduation from a baccalaureate institution with an upper division major in

nursing, a minimum grade point average, and any additional criteria identified.

Success--completion and graduation from a master's nursing program as measured by master's cumulative grade point average.

Limitations

For this study the following limitations were recognized.

1. Masters' nursing programs included in this study are limited to the number of voluntary responses to the questionnaire which are returned to the investigator.
2. The degree of selectivity may vary among masters' nursing programs with respect to selective admission processes.
3. Reasons for attrition from academic programs are not necessarily obtainable and may be other than academically related.

Delimitation

One delimitation was set for this study. The population consisted only of masters' nursing programs in the United States.

Assumptions

For the purposes of this study the following assumptions were formulated.

1. Grade point averages reflect students' academic achievement.
2. Attrition from academic programs is anticipated.

Summary

Masters' nursing programs individually have developed a variety of criteria on which student selection and admission are based. These criteria have been divided into selective and nonselective admission processes both of which are related to student attrition and success.

This study attempted to determine if there was a relationship between types of admission processes and student attrition rates. In addition, a relationship was investigated between the types of admission processes and levels of success as measured by cumulative masters' grade point averages.

The results of this study are related in the following manner. A review of literature is discussed in Chapter 2. Chapter 3 presents the procedure for collection and treatment of the data. Analysis of the research data is described in Chapter 4. Chapter 5 includes a summary, conclusions, implications and recommendations relevant to the problem under study.

CHAPTER 2

REVIEW OF LITERATURE

A survey of the literature relevant to the admission processes of masters' nursing programs was undertaken during the research process. A limited number of references was found addressing admission processes and attrition at the master's level of nursing education. Therefore, attention was given to literature related to associate and baccalaureate degree nursing admission processes with the belief that these findings will be helpful in analyzing the admission processes of masters' nursing programs.

This investigation addressed three topics with respect to the problem under study. The first consideration was given to the concept of selectivity which became the background for the second topic of predictor variables used in the selection process. Attrition was the third component of the study. Each of these foci will be discussed in relation to the literature reviewed.

Selectivity

All institutions of higher learning have adopted policies of admission that determine which students will be admitted and which will be rejected from an educational

program. Rationale for such procedures originally was based on the growing number of qualified applicants. More recently admission processes were incorporated to maintain a stable enrollment and to comply with budgetary restrictions (Denman, 1976).

Several strategies were developed to handle the admission process. "Open door" and "first come, first served" policies were adopted, accepting students in the order in which they applied. Random selections or quotas demonstrated a different procedure for admitting a specified number of qualified students into educational programs (Trends, Issues, and Implications, 1978). Stringent admission standards were enacted as assurance methods for admitting only qualified students most likely to remain and to complete the educational program. Rationale for this practice was aimed at "reduction in the student failure-withdrawal rate thus preventing loss in effort, time, money, and material resources both to the student and to the college" (Thomas, 1974, p. 156).

In career programs, admission policies tended to follow the trend of the parent institution but added additional admission criteria to separate the desirable qualities sought in a potential student from the actual qualities of the total student population (Trends, Issues, and Implications, 1978). Incorporation of a separate selection

process thus focused on selecting outstanding candidates for the career program rather than screening out high-risk applicants (Murden, Galloway, Reid, & Colwill, 1978). In addition, this practice provided "information on students not only to predict success in their programs but also to provide better guidance and to meet special needs of the students" (Thomas, 1974, p. 156).

Nursing followed the pattern of these other career programs and at all levels of nursing a wide variety of admission criteria were adopted as entrance requirements into each program. As in many disciplines the different criteria were chosen as indices of a nursing student's academic ability and potential and were considered to be reasonable evidence of future success in the nursing program (Clemence, 1978).

Generally, admission processes of nursing programs are identified as selective or nonselective in nature, based upon the kind and amount of criteria required for program entrance. Nonselective processes provide equal opportunity to all students who apply to a program and attempt to remedy racial and cultural discrimination (Haglund, 1978). Proponents of a nonselective process argue that educational opportunities should not be limited to high achievers and question the validity of criteria used in selective processes. Moxley and White (1975) reported:

. . . the entering potential of a student, as determined by test scores, has been of prime importance. Yet hard data about the ability of these tests to predict performance in graduate education are hard to find. (p. 625)

Nonselective admission processes are promoted by a contemporary belief that "controlled exit competencies are more relevant than rigid admission criteria" (Lenburg, 1975, p. 634). Moxley and White (1975) supported this concept stating "perhaps terminal behaviors from the graduate program (are) more important than entering behaviors" (p. 627).

A selective admission process provides for student acceptance into a program on the basis of the applicant's academic performance in previous educational settings, scores on standardized tests, personal references, interviews and job experiences. These criteria are viewed as predictors of future performance and are utilized to admit only certain types of students into a program. As previously stated selective admissions attempt to assure the entrance of only qualified and capable students thereby reducing or eliminating attrition and ensuring a cost-effective nursing program (Thomas, 1974).

Predictor Variables

Predictor variables, measures of student potential, and selection criteria are all terms used to describe the

various admission criteria utilized in the process of screening applicants for admission into educational programs. In graduate education and more specifically in master's nursing education, predictor variables chosen as admission criteria generally include, but are not limited to, baccalaureate grade point average (GPA), baccalaureate nursing GPA, the verbal and/or quantitative scores of the Graduate Record Examination (GRE) Aptitude Test, Miller Analogies Test (MAT), letters of reference, personal interviews, and prior professional nursing experience. Selective and nonselective programs alike incorporate these predictor variables to varying degrees during the admission process. The effectiveness of the selection process is demonstrated through high correlations of each of the predictor variables with the criterion measures or outcome variables of success (Plapp, 1965).

According to Willingham (1974) predictor variables and criterion measures should have reasonable construct validity, reliability, and be accepted as practical, feasible, and ethical. Unfortunately, a search of the literature revealed limited research of predictor variables for graduate nursing education. The studies which have been reported are helpful, however the study results often are inconsistent.

Grade point averages (GPAs) were listed as the most widely used and readily available measure of academic

achievement. Willingham (1974) indicated that a graduate student's undergraduate GPA has obvious relevance as a predictor "because it represents the same sort of behavior one is trying to forecast" (p. 274). Undergraduate GPA appeared as the single best predictor of graduate GPA (.41 correlation) in a study predicting grades in master's-degree programs (Stordahl, 1967). Sime (1978) examined the predictive validity of entry measures, including undergraduate GPA, for admission to a master's degree program in nursing. Results indicated undergraduate GPA correlated .45 with the criterion measure of master's GPA. Similar results were obtained by other investigations of students in graduate nursing programs. Stein and Green (1970) demonstrated a .38 to .40 correlation between baccalaureate and master's GPAs and Thomas (1974, 1977) obtained similar correlations from two related studies. Ainslie, Andersen, Colby, Hoffman, Meserve, O'Connor, and Quimet (1976) investigated admission criteria of graduate nursing education and correlated each variable with master's GPA. Conversely, results indicated only a weak association, .20 to .22, between nursing, nonnursing, and cumulative undergraduate GPAs and master's GPA.

Standardized tests have been used as predictor variables since they provide reliable and standard measures suitable for national administration. The most popular

tests required for admission to graduate study have been the Graduate Record Examination (GRE) Aptitude Test, verbal and quantitative scores, and the Miller Analogies Test (MAT). Stordahl (1967) investigated the validity of the MAT alone and in combination with undergraduate GPA as a predictor of grades in a Master of Arts degree program. The correlation coefficient computed for MAT scores was .32 and for undergraduate GPA .41. Multiple correlation of these two variables with graduate GPA was .45, indicating a significant increase in the predictability of course grades by adding the MAT to undergraduate GPA. Investigation of the usefulness of the MAT as a predictor of success in graduate nursing education has not been reported to date in the literature.

A more common test used in studies of success in graduate school has been the GRE. Willingham (1974) reported validity coefficients of .24, .23, and .33 for GRE verbal, quantitative, and composite scores, respectively. The composite undergraduate GPA and GRE however provided a substantially more accurate prediction (.45) of success in graduate school. The usefulness of the GRE in predicting graduate nursing performance has been investigated by several authors. Stein and Green (1970), in a study of 35 master's students, reported a significant correlation of .33 between GRE quantitative scores and total master's GPA.

The GRE verbal score was ineffective as a predictor (.01); however, both GRE verbal and GRE quantitative scores predicted nonnursing GPAs much better (.56) than they predicted nursing GPAs. Stein (1978) repeated her study to determine the consistency of the previous results and reported similar findings in a group of 54 master's nursing students. As in the first study, GRE quantitative scores correlated moderately well with nonnursing and total GPA and verbal GRE scores were not significantly correlated. Nursing GPAs were not correlated with either the verbal or quantitative GRE scores, suggesting the GRE to have little predictive value in determining graduate nursing grades.

In contrast to the results of studies completed by Stein (1978) and Stein and Green (1970), Ainslie et al. (1976) and Thomas (1974, 1977) reported studies confirming the predictive validity of GREs. In Ainslie et al.'s (1976) study of 193 graduates of a master's nursing program, the GRE verbal score was a moderately reliable predictor (.37) for nursing students in some clinical areas, especially in community health and psychiatric nursing. Thomas (1974) found the GRE verbal (.39) to be the best single predictor of master's GPA, with the GRE quantitative (.33) significant as well for 71 graduates of a nursing service administration master's program. Thomas (1977)

repeated her investigation using 198 graduates from all clinical majors in a master's nursing program and reported the GRE verbal and quantitative scores to be significantly correlated with the criterion variable of master's GPA. The GRE total score (.44) also was significant; however, the scores varied according to students' clinical major.

The interview is yet another selection procedure often used during an admission process. In the health professions the interview may serve the purpose of providing the educator an opportunity to appraise a prospective student as a whole and permit observation of the applicant's interpersonal skills so necessary for effective patient and colleague relationships (Crocker, 1978). The interview procedure is a popular practice, however limited literature can substantiate its validity and reliability as a predictor variable.

Most medical schools have utilized the interview in their selection process in an attempt to select a good physician rather than a good medical student and to select the applicant who inspires confidence and has a capacity for leadership (Gottheil & Michael, 1957). Wilson and Chater (1973) suggested the interview be adopted for screening graduate nursing students since "an interview situation might provide an opportunity to assess how imaginatively a

prospective student defines and approaches a problem involving a human condition" (p. 442).

Denman (1976) retrospectively studied the characteristics of applicants accepted to a master's nursing program in relation to those who appeared and those who did not appear registration day. Academic and demographic characteristics of the two groups did not differ significantly. However, the two groups did differ on statements of goals and commitments to nursing which had been assessed during a preadmission interview. The "show" group had consistently demonstrated higher motivation and goal-directedness as compared to the "no-show" group. The author contended, therefore, that through the interview process faculty were better able to select applicants with a high motivation, a commitment to nursing, and a leadership potential.

The search of literature revealed no studies investigating the validity or reliability of personal references or professional experiences as predictors of success. General ideas appeared throughout various articles, however, suggesting professional practice post-baccalaureate degree provided the graduate with "the opportunity to resolve the conflicts of professional socialization and acquire technical competence through a 'growth-producing' work experience" (Mereness, 1975, p. 639).

Letters of reference, also utilized in some selection processes, have been of questionable relevance because students normally request such letters only from those individuals who will write positive evaluations. With the enactment of the Family Educational Rights and Privacy Act of 1974, parents and students have the right to inspect and review any and all data related to them, thus the confidentiality of references can no longer be guaranteed. In addition the value of references is limited because "confidence in recommendations (references) appeared to be related to the recipients' knowledge of the writer" (Ainslie et al., 1976, p. 297).

In view of the literature on predictor variables it is apparent that predictors operate differently for the variety of graduate students as well as for students in different clinical nursing majors. Thus further research is necessary before definitive support can be given to claim the consistent predictive value of any admission criteria for graduate nursing education.

Attrition

A primary objective of instituting a selective process of admission in an educational program is to improve the predictability of a student's success, withdrawal or failure. High attrition rates are frustrating, time consuming to

faculty, and very costly to the program or institution (Ainslie et al., 1976). High attrition also signifies a reduction in the anticipated number of program graduates, thus a decrease in the number of individuals educated for a specific profession. This poses a particular concern in nursing education today with increasing demand for master's-prepared nurses.

The literature addressing attrition suggested that high attrition rates were related to low admission standards or nonselective admission processes (Tinto, 1975). This theory lacked substantial support however since selective programs also experienced significant attrition. Franklin (1975) investigated the relationship of type of admission practice of associate degree nursing programs to student attrition and success, as measured by grade point averages and scores on state board examinations. Results indicated that overall attrition in nonselective schools was higher than in selective schools. Her study also addressed reasons for attrition and found that rate of academic failure was higher for students in nonselective schools.

Tinto (1975) stressed the need to differentiate between academic withdrawal or failure and voluntary withdrawal based on the implications for institutional planning and adaptation of admission criteria. Related to reason for withdrawal was a consideration of the individual's academic

grade performance, intellectual development, and level of commitment to the goal of college completion. While academic dismissal or failure was more closely associated with grade performance, dropout in the form of voluntary withdrawal was not. Willingham (1974) also stated that "whether or not a student graduates may frequently depend upon extraneous influences rather than demonstrated competence" (p. 275).

Research on attrition and reasons for attrition is seriously lacking at all levels of nursing education. While it is evident that present predictor variables have provided some help in the selection of graduate students, attrition continues. From the viewpoint of preventing withdrawals or failure and conserving scarce resources it thus becomes important to improve the validity of selection procedures. An effective means for achieving this goal is the maintenance of records stating why students did not complete the program. These data then could be correlated with admission criteria and could be a valuable source for identifying applicants who are most likely to complete the graduate nursing program (Ainslie et al., 1976).

Summary

A search of the literature was undertaken to determine previous research in the areas of admission processes,

predictor variables utilized in the admission process, and attrition. The selective nature of admission processes was considered with predictor variables most commonly found in masters' nursing programs. Reported studies of predictor variables and selectivity generally were inconclusive with respect to master's nursing education. However, the literature suggested that prediction and selection were inseparable from focusing on the outcome (withdrawal or success) of the program. The reported studies also advocated continued research as an effective method of improving selection of graduate students. This research would improve and further develop predictable criteria of success, thereby reducing the attrition so frequently experienced.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This study investigated possible relationships of selective and nonselective admission processes of masters' nursing programs to student attrition and success rates. To accomplish this a nonexperimental, explanatory study was designed to provide information on masters' nursing program admission processes, enrollment and withdrawal data, and students' grade point averages.

Setting

Masters' nursing programs in the United States constituted the setting for this research. Questionnaires were mailed to the chairperson or coordinator of each nursing program, completed by that person or another designated individual, and returned to the investigator. Retrieval of the requested information by the coordinator or chairperson, rather than by the investigator, assisted in the assurance of anonymity for individual students and schools.

Population

To obtain data on admission processes, enrollment, withdrawal, and grade point averages, questionnaires were

sent to all masters' nursing programs in the United States. The programs were identified from the National League for Nursing publication Master's Education in Nursing (1978) and from the "Directory: Nursing--Schools, Colleges, Multipurpose Departments" in Peterson's Annual Guides to Graduate Study (1978). Questionnaires were mailed to the chairperson or coordinator of 115 programs assumed to be conducting masters' degree programs for nurses during the 1977-1978 academic year.

Instrument

A three-part questionnaire (see Appendix A), developed by the investigator, was used to obtain objective, factual data from the nursing programs regarding admission processes, enrollment, withdrawal, and students' baccalaureate and masters' cumulative grade point averages. Selected as the most effective and efficient means of collecting data, the questionnaire allowed for a large population to be included in the study and less pressure was placed on the respondents' immediate replies. The questionnaire format also assured the respondents greater confidentiality of their data.

Part I of the questionnaire, comprised of forced-choice responses, identified a nursing program as selective or nonselective. In this part of the questionnaire items which described admission criteria were based on general admission

requirements reported in program catalogs and on a review of current literature addressing the topic of admission criteria in masters' nursing programs. The format for this part was derived from a similar questionnaire in Franklin's (1975) study of admission criteria in junior college nursing programs.

Information about the number of student admissions, enrollments, and withdrawals for the 1977-1978 academic year was obtained from Part II of the questionnaire. This information was used to determine student attrition for each program. Data were given for full-time and part-time students as well as the minimum number of credits or hours distinguishing a full-time from a part-time student. Withdrawal was classified as academic or nonacademic with numbers of students furnished for each category. The specific degree conferred by the institution also was disclosed in Part II.

Cumulative baccalaureate and masters' grade point averages for all full-time students graduating from each program for the 1977-1978 academic year were obtained in Part III of the questionnaire. If the program was two years in length data were given for full-time students admitted in 1976 and graduated by 1978. These grade point averages were requested because the baccalaureate grade point average represented one criterion of admission, while

the master's grade point average indicated the graduated student's level of success. The information on students' grade point averages was recognized in some programs as confidential and therefore was not released. The data which were obtained, however, provided some measurable criteria for correlational analysis.

Determination of validity and reliability were not required in the development of this instrument due to the nature of the data. Prior to mailing, however, an expert in curriculum development reviewed the questionnaire for clarity, content, and appropriateness.

Data Collection

Questionnaires were mailed to the chairperson or coordinator of the 115 masters' nursing programs in the United States. A cover letter (see Appendix A) stating the purpose and objective of the three part questionnaire and proposed research accompanied the questionnaire. Specific instructions also were provided for the completion of each part of the questionnaire. Self-addressed, stamped envelopes were included in the mailing to expedite return of the questionnaires to the investigator. The envelopes were coded to identify the programs returning the questionnaires.

Questionnaires were mailed in March, 1979 allowing 4 weeks for their return by April, 1979. Based upon an

overwhelming response by programs designated as selective, follow-up letters were mailed only to those programs believed to be nonselective. The second mailing occurred 6 weeks after the initial mailing and contained a duplicate questionnaire for the convenience of the respondent.

Data utilized in this study were obtained through the voluntary responses of masters' nursing programs. Procedures were instituted to provide for the anonymity and confidentiality of the respondents by coding only the envelope of the respondent, not the questionnaire, and by requesting students' numbers or codes when reporting grade point averages.

Treatment of the Data

Responses to items in Part I of the questionnaire were tabulated according to the program's disclosure of the presence or absence of certain admission criteria. According to the stated definition a program was designated as nonselective if students were admitted on the basis of R.N. licensure, or proof of intent, graduation from a baccalaureate institution with an upper division major in nursing, and a minimum grade point average. A program was classified as selective if students were admitted on the basis of R.N. licensure, or proof of intent, graduation from a baccalaureate institution with an upper division major in nursing,

a minimum grade point average, and additional criteria identified such as GRE scores, references, or personal experience.

Attrition rates for full-time and part-time students were determined from the data collected in Part II of the questionnaire by dividing the number of students who withdrew from a program by the number of students enrolled. These rates were indicated by percentages. The chi square test was used for calculating group differences between student attrition in selective programs and attrition in nonselective programs. The chi square test also was used in calculating group differences between reasons for withdrawal from the program. A level of significance was set at $p \leq 0.05$ for this test.

For each selective and nonselective program reporting grade point averages, the Pearson Product-Moment Correlation was used to compute the correlations between each student's cumulative baccalaureate grade point average and cumulative master's grade point average. The t test was employed to determine the differences between students' grade point averages in selective programs from those in nonselective programs. The t tests also were performed to determine differences between cumulative baccalaureate grade point averages used as admission criteria for selective and non-selective programs and differences between baccalaureate

nursing grade point averages used as admission criteria for selective and nonselective schools. The acceptable level of significance was set at $p \leq 0.05$ for these tests.

Summary

Data determining the selective and nonselective admission process of a master's nursing program were collected from questionnaires sent to all masters' nursing programs in the United States. Additional information also was obtained on numbers of student enrollment, withdrawal, and on students' cumulative baccalaureate and masters' grade point averages. Both parametric and nonparametric tests were employed during the statistical treatment of the data.

CHAPTER 4

ANALYSIS OF DATA

This chapter relates the analysis techniques utilized in the study of selective and nonselective masters' nursing programs. Attrition rates, reasons for attrition, and grade point averages were studied to determine if significant differences exist between the two types of programs.

Questionnaires were mailed to 115 schools listed in Master's Education in Nursing (1978) and Peterson's Annual Guides to Graduate Study (1978) as having masters' nursing programs. Responses were received from 82 schools, a 71% return response. Of the total number of questionnaires returned only 51 (62%) were sufficiently complete for use in this study. Of the unusable 31 questionnaires, 8 schools declared no master's program in nursing; 8 programs were unable to complete the questionnaire due to time involved in retrieving the requested information or due to other priorities of the school; and 15 questionnaires were returned with partially incomplete data regarding numbers of students admitted and withdrawn, thus not suitable for inclusion in the study.

Part I

Part I of the questionnaire provided descriptive information about the admission criteria of masters' nursing programs. Based upon responses to questions in this section, programs were identified as having nonselective or selective admission processes. A total of 51 schools were included in the final study sample, 9 in the nonselective category and 42 in the selective category. Table 1 presents these data.

Table 1

Number and Percentage of Masters' Nursing Programs
Classified as Nonselective or Selective

Type of Program	Number	Percent
Nonselective	9	18
Selective	42	82
Total	51	100

Description of Nonselective Masters'
Nursing Programs

Data from the questionnaires identified nine (18%) programs as nonselective, requiring graduation from an accredited baccalaureate institution, R.N. licensure, or proof of intent, and a minimum grade point average. One of the nine nonselective programs did not require a baccalaureate degree in nursing. All nonselective programs

required minimum grade point averages for admission, with averages ranging from 2.5 to 3.0 on a 4.0 scale.

Two programs in the nonselective group required standardized tests for admission. The Graduate Record Examination (GRE) was requested by one program and the Miller Analogies Test (MAT) was requested by the other program. In both instances, however, the respondents claimed the test results were used only for guidance or counseling and not for determining admission qualifications. Thus, both programs remained in the nonselective group.

References, personal interviews, and professional experience were not required by any of the programs categorized as nonselective. A prerequisite course, statistics, was required in six (66%) of the programs. The additional three (33%) programs did not require any prerequisite courses.

Six of the nonselective masters' nursing programs reported admitting students who had not met all of the prerequisite criteria. These admissions were classified as conditional or provisional and students remained on probation until such time as the deficiencies were corrected.

Description of Selective Masters' Nursing Programs

Based upon data from the respondents, 42 (82%) programs were identified as having selective admission processes.

Criteria distinguishing a selective program included R.N. licensure or proof of intent, graduation from a baccalaureate institution, minimum grade point average, standardized tests, references, personal interviews, and professional experience. Of the selective schools, 36 (85%) required a baccalaureate degree in nursing. All (100%) of these programs required minimum grade point averages for admission, with averages ranging from 2.5 to 3.0 on a 4.0 scale.

Forty (95%) selective programs required some form of standardized test for admission. The Graduate Record Examination (GRE) and Miller Analogies Test (MAT) were identified as the most common, with 34 (80%) programs requiring the GRE and 15 (36%) programs requiring the MAT. A total of nine (21%) programs required both the GRE and MAT scores. Other standardized tests used for admission included the National League for Nursing exam (two programs), the Test of English as a Foreign Language (TOEFL) for foreign students (one program), and one program required an applicant to take a test prepared by the school. Minimum acceptable composite GRE scores were identified by most of the programs requiring the GRE and composite scores ranged from 750 to 1000. Scores required on the MAT ranged from 30 to 50.

References were required by 40 (95%) selective programs while only 25 (59%) programs requested personal interviews.

In three schools the interview was waived if the applicant had to travel a great distance. Postbaccalaureate degree professional experience was required by 23 (55%) of the selective programs and varied in length from 1 to 2 years. Four schools did not specify any time parameters for work experience. Additional criteria listed as necessary for admission included professional liability insurance for three programs and one school required the applicant to submit a statement of future professional goals.

Several prerequisite courses were required by the selective masters' nursing programs. Twenty-seven (64%) programs required students to complete a statistics course prior to entrance into the program. A physical assessment course was required along with the statistics course in six (14%) of the programs. One program required biochemistry prior to admission and 13 (31%) of the programs reported no prerequisite courses.

Thirty-two (76%) of the selective programs claimed to admit students who had not met one or more of their criteria. These admissions were classified as conditional or provisional until such time as the students' deficiencies were remedied. In some schools stipulating a minimum grade point average and minimum score on a standardized test, students could be admitted with a combination of either a high grade point average and below minimum test score or a

high test score and below minimum grade point average. Most programs admitting students who had not met all stipulated criteria stressed the importance of evaluating the applicant as an individual rather than passing judgement solely on the basis of admission criteria.

Comparison of Grade Point Averages Used as Admission Criteria in Nonselective and Selective Masters' Nursing Programs

Minimum grade point averages used as admission criteria were reported by both nonselective and selective masters' nursing programs. All nine (100%) nonselective programs required a minimum baccalaureate grade point average for admission while only four (44%) nonselective programs required a minimum baccalaureate nursing grade point average for admission. Four (44%) programs required both the minimum baccalaureate and nursing grade point averages.

Thirty-nine (93%) selective masters' nursing programs required a minimum baccalaureate grade point average for admission and 21 (50%) programs required a minimum baccalaureate nursing grade point average. A total of 19 (45%) programs required both the minimum baccalaureate and nursing grade point averages.

The t test was employed to determine if there was a difference between the minimum baccalaureate grade point averages required for admission by the nonselective and

selective programs (see Appendix B). Analysis indicated no significant difference between the 9 nonselective and 39 selective masters' nursing programs requiring a minimum baccalaureate grade point average, $t = 0.48$; not significant at 0.05 (see Table 2).

Table 2

Means and Standard Deviations of Minimum Baccalaureate Grade Point Averages Required by Nonselective and Selective Masters' Nursing Programs

Minimum Baccalaureate Grade Point Average	Type of Program	
	Nonselective	Selective
Total Number of Programs Reporting GPAs	9	39
Mean GPA	2.88	2.92
Standard Deviation	0.18	0.23

Note: $t = 0.48$; not significant at 0.05.

The t test also was utilized to examine the difference between the minimum baccalaureate nursing grade point averages required for admission by nonselective and selective programs (see Appendix B). Analysis revealed no significant difference between minimum baccalaureate nursing grade point averages in the 4 nonselective and 21 selective schools using the minimum baccalaureate nursing grade point average as an admission criterion, $t = 0.08$; not significant at 0.05 (see Table 3).

Table 3

Means and Standard Deviations of Minimum Baccalaureate Nursing Grade Point Averages Required by Nonselective and Selective Masters' Nursing Programs

Minimum Baccalaureate Nursing Grade Point Average	Type of Program	
	Nonselective	Selective
Total Number of Programs Reporting GPAs	4	21
Mean GPA	2.92	2.89
Standard Deviation	0.15	0.85

Note: $t = 0.08$; not significant at 0.05.

Part II

Data from Part II of the questionnaire yielded information about the intended length of program completion, the number of full-time and part-time students enrolled during the 1977-1978 academic year, the number of full-time and part-time students who withdrew during the 1977-1978 academic year, and the reasons for withdrawal. Respondents also declared the specific degree granted to graduates of their master's nursing program.

Description of Nonselective Masters' Nursing Programs

Five (55%) programs classified as nonselective offered a master's nursing program extending one year (three semesters or four quarters) in length. One school specified a

program to be completed in 1.5 years and three (33%) nonselective programs offered a degree to be completed in 2 years.

Degrees granted to graduates of nonselective masters' nursing programs were varied. Three programs granted a Master of Science, three programs granted a Master of Nursing, two programs granted a Master of Science in Nursing, and one program granted a Master of Arts degree. One of the nonselective programs granting a Master of Science also provided the option of a Master of Arts degree.

Attrition rates were determined for full-time and part-time students and the total student population in nonselective programs. The rates were calculated by dividing the number of students who withdrew for the 1977-1978 academic year by the number of students admitted for the same year. In nonselective masters' nursing programs, a total of 24 (3%) students withdrew from the programs during the 1977-1978 academic year. Fifteen (63%) of the withdrawn students were full-time and 9 (37%) of the students were part-time (see Table 4).

In both types of masters' nursing programs reasons for withdrawal were designated as academic or other than academic. Of those reported there were 3 (13%) students in the nonselective group who withdrew due to academic reasons

Table 4

Number and Percentage of Students Withdrawn from
Nonselective Masters' Nursing Programs During
the 1977-1978 Academic Year

Type of Student	Number	Percent
Full-time	15	63
Part-time	9	37
Total	24	100

and 21 (87%) who withdrew for other than academic reasons.

Description of Selective Masters'
Nursing Programs

Data concerning the intended length of program completion were related in Part II of the questionnaire. Twenty-four (57%) selective programs granted a master's degree after 9 to 12 months; 10 (24%) programs required 1.5 years to complete; and 8 (19%) programs were 2 years in length.

Programs designated as selective granted degrees similar to those of nonselective programs. There were 18 programs granting a Master of Science in Nursing, 16 programs granting a Master of Science, and 8 programs granting a Master of Nursing. One program offering a Master of Science also provided the alternative Master of Arts degree.

Attrition rates also were calculated for students in selective masters' nursing programs. A total of 234 (6%) students withdrew from selective programs during the 1977-1978 academic year. This rate reflected attrition of 117 (50%) full-time students and 117 (50%) part-time students (see Table 5).

Table 5

Number and Percentage of Students Withdrawn from Selective Masters' Nursing Programs During the 1977-1978 Academic Year

Type of Student	Number	Percent
Full-time	117	50
Part-time	117	50
Total	234	100

Reasons for attrition were classified as academic or nonacademic in the selective programs. Of those reported, 51 (22%) students withdrew from school for academic reasons and 183 (78%) students withdrew for nonacademic reasons.

Comparison of Attrition and Reasons for Attrition in Nonselective and Selective Masters' Nursing Programs

The chi square test was performed using data from both types of programs to test the hypothesis that there is a

higher student attrition rate in masters' nursing programs utilizing nonselective admission criteria than in programs utilizing selective admission criteria (see Appendix C). Analysis of attrition of both full-time and part-time students in relation to type of program showed a significant difference between the attrition experienced by nonselective and selective programs, where $\chi^2 = 15.36$, $p \leq 0.05$ (see Table 6).

Table 6

The Relationship of Nonselective and Selective Masters' Nursing Programs to Outcome After Admission for Full-Time and Part-Time Students

Outcome	Type of Program				Total
	Nonselective		Selective		
	Ea	Ob	Ea	Ob	
Attrition	47.74	24.00	210.26	234.00	258.00
Success	793.26	817.00	3493.74	3470.00	4287.00
Total	841.00	841.00	3704.00	3704.00	4545.00

Note: $\chi^2 = 15.36$; $p \leq 0.05$

^aE = expected value

^bO = observed value

While analysis indicated a significant difference between the two types of programs, the figures demonstrated that higher attrition was experienced in the selective programs

rather than in the nonselective programs as was hypothesized. Thus, the first research hypothesis was not supported.

When full-time student attrition was analyzed separately the chi square value dropped sharply to 3.03 (see Table 7) indicating no significant difference between attrition of full-time students in nonselective and selective masters' nursing programs.

Table 7

The Relationship of Nonselective and Selective Masters' Nursing Programs to Outcome After Admission for Full-Time Students

Outcome	Type of Program				Total
	Nonselective		Selective		
	E ^a	O ^b	E ^a	O ^b	
Attrition	22.32	15.00	109.68	117.00	132.00
Success	445.68	453.00	2190.32	2183.00	2636.00
Total	468.00	468.00	2300.00	2300.00	2768.00

Note: $\chi^2 = 3.03$; not significant at 0.05

^aE = expected value

^bO = observed value

Attrition of part-time students also was analyzed separately indicating a significant difference between attrition of part-time students in nonselective and selective masters' programs, where $\chi^2 = 15.68$, $p \leq 0.05$ (see Table 8).

Table 8

The Relationship of Nonselective and Selective Masters' Nursing Programs to Outcome After Admission for Part-Time Students

Outcome	Type of Program				Total
	Nonselective		Selective		
	E ^a	O ^b	E ^a	O ^b	
Attrition	26.45	9.00	99.55	117.00	126.00
Continuation	346.55	364.00	1304.45	1287.00	1651.00
Total	373.00	373.00	1404.00	1404.00	1777.00

Note: $\chi^2 = 15.68$; $p \leq 0.05$

aE = expected value

bO = observed value

The chi square test again was used to determine if a significant difference existed in reasons for withdrawal between the selective and nonselective programs (see Appendix C). Analysis indicated no significant difference between the selective and nonselective programs with respect to reasons for withdrawal as illustrated in Table 9.

Part III

Data reported in Part III of the questionnaire reflected baccalaureate and masters' grade point averages of graduated masters' students from selective and nonselective nursing programs. Table 10 contains the means and standard

Table 9

The Relationship of Nonselective and Selective Masters' Nursing Programs to Reason for Withdrawal

Reason for Withdrawal	Type of Program				Total
	Nonselective		Selective		
	Ea	Ob	Ea	Ob	
Academic	5.02	3.00	48.98	51.00	54.00
Other	18.98	21.00	185.02	183.00	204.00
Total	24.00	24.00	234.00	234.00	258.00

Note: $\chi^2 = 1.13$; not significant at 0.05

^aE = expected value

^bO = observed value

deviations of cumulative baccalaureate grade point averages for 30 students in nonselective programs and 40 students in selective masters' nursing programs. The t test was used with these data to determine differences in the cumulative baccalaureate grade point averages of students from both types of programs (Table 10). Analysis indicated no significant difference between cumulative baccalaureate grade point averages of students from selective and nonselective masters' programs, $t = 1.41$, not significant at 0.05 (see Appendix D).

Table 10

Means and Standard Deviations of Cumulative Baccalaureate
Grade Point Averages for Graduated Masters' Students
of Nonselective and Selective Masters'
Nursing Programs

Cumulative Baccalaureate Grade Point Average	Type of Program	
	Nonselective	Selective
Total Number GPAs	30	40
Mean	3.24	3.02
Standard Deviation	0.38	0.79

Note: $t = 1.41$; not significant at 0.05

Table 11 contains the means and standard deviations of cumulative masters' grade point averages for 30 students in nonselective programs and 40 students in selective masters' programs. The t test was performed using these data to test the research hypothesis that students from programs utilizing selective admission processes would experience higher cumulative masters' grade point averages than students from programs using nonselective admission processes. Analysis indicated no significant difference in the masters' grade point averages of students from both types of programs, $t = 1.52$, not significant at 0.05 (see Appendix D). Thus, the second hypothesis was not supported.

Pearson's Product-Moment Correlation was used to compute the correlation between each student's baccalaureate

Table 11

Means and Standard Deviations of Cumulative Masters' Grade Point Averages for Graduated Masters' Students of Nonselective and Selective Masters' Nursing Programs

Cumulative Master's Grade Point Average	Type of Program	
	Nonselective	Selective
Total Number GPAs	30	40
Mean	3.44	3.55
Standard Deviation	0.27	0.32

Note: $t = 1.52$; not significant at 0.05

grade point average and master's grade point average for students in selective and nonselective masters' nursing programs (see Appendix E). For grade point averages reported on 40 students in selective programs a correlation of $r = 0.35$ was significant at $p \leq 0.05$. For grade point averages reported on 30 students in nonselective programs a correlation of $r = -0.02$ was computed indicating no correlation between baccalaureate and masters' grade point averages in nonselective masters' nursing programs.

Interpretation

In this research study, tabulated responses to a questionnaire identified a large majority (82%) of masters' nursing programs as having selective admission processes.

The investigations of Thomas (1974), Murden, Galloway, Reid, and Colwill (1978), and Clemence (1978) related to selective admission processes, inferred that programs utilizing predictive criteria for selecting applicants would experience lower student attrition rates and higher levels of student performance when compared to programs not using these criteria. The contention was the more selective a program became in its admission process the more predictive a program could be about anticipating the levels of success achieved by students. Also, since past performance based on cognitive abilities usually could be correlated with future performances, it seemed logical that requiring various admission criteria would give a more accurate indication of a student's potential in a master's program.

The results of this study did not support the argument for selective admissions in masters' nursing programs. While significant differences in attrition were computed between the two types of programs, the analysis indicated that the higher attrition was experienced in selective programs. These findings were true for the total number of students enrolled in the two types of programs. When analyzed according to type of student, attrition again was significantly higher for part-time students in selective programs than for part-time students in nonselective programs. Analysis of full-time students, however,

demonstrated no significant differences between the two types of programs. Apparently, attrition was related more to type of student than to type of program.

The possibility exists, therefore, that there are certain characteristics of part-time students not shared by full-time students which affect the likeliness of part-time students to withdraw. This investigation was not designed to look at these differences between types of students; however it appears that further study in this area may reveal interesting findings with regard to differences in full-time and part-time students.

The analysis of reasons for withdrawal from selective and nonselective masters' nursing programs revealed no significant differences between the two groups. Although the need to differentiate between academic and voluntary withdrawal was stressed by Tinto (1975) and Franklin (1975), inferring that higher academic attrition would be experienced by nonselective programs, the study results did not support this claim. Perhaps, again, reasons for withdrawal can not be related to type of admission but rather should be investigated in relation to the type of students admitted into the program. Further investigation of the characteristics of withdrawn students would be necessary before any conclusions could be made regarding academic or nonacademic reasons for withdrawal.

It was hypothesized that higher levels of success, based on previous high level performance and measured by grade point averages, would be experienced by students in selective masters' nursing programs. Results of this study did not support this contention and indicated no significant differences in masters' cumulative grade point averages between students in selective and nonselective masters' nursing programs. These findings were not surprising since further analysis revealed no significant difference between baccalaureate grade point averages for students in selective and nonselective masters' programs. In addition, no significant difference was found between the minimum baccalaureate grade point average used as an admission criterion and the minimum baccalaureate nursing grade point average used as an admission criterion by selective and nonselective schools. Evidently, students admitted to either selective or non-selective masters' nursing programs have similar academic abilities at the baccalaureate and master's level. Also it is apparent that both types of programs recognize a similar minimum grade point average as necessary for enrollment and completion of a master's nursing program.

Willingham (1974), Stordahl (1967), Sime (1978), and Thomas (1974, 1977) reported baccalaureate grade point averages as the most consistent predictor of graduate grade point averages. Thus students' baccalaureate grade point

averages were correlated with students' masters' grade point averages in both selective and nonselective nursing programs. A significant correlation was obtained between the baccalaureate and masters' grade point averages for students in selective programs. These results supported the findings of Sime (1978), Stein and Green (1970), and Thomas (1974, 1977) demonstrating the baccalaureate grade point average to be a valid predictor of success in master's nursing education. Surprisingly, however, the calculated correlation coefficient for nonselective masters' programs revealed no correlation between the two grade point averages. A possible explanation for this result is the extremely small number (30) of pairs of grade point averages available for analysis. These grade point averages were reported by a total of three (33%) nonselective programs which might not indicate a representative sampling of all nonselective programs.

Based on the data collected for this study neither of the research hypotheses were supported. Attrition rates were not higher in nonselective masters' nursing programs and cumulative masters' grade point averages were not higher for students in selective masters' nursing programs. While conclusive evidence can not be obtained from a single study, perhaps these results are suggestive of some erroneous assumptions by nursing programs that a student's potential or ability to perform and achieve success in a master's

nursing program can be based solely on specific criteria required for program admission. The findings seem to point to other variables which have not been assessed during the admission process yet are influencing students in relation to attrition and attainment of success. Evidently, as Lenburg (1975) and Moxley and White (1975) suggested, entering behaviors may not be as important as terminal behaviors.

Summary

Questionnaires returned from masters' nursing programs in the United States provided information on each program's admission criteria, enrollment and withdrawal of students, and baccalaureate and masters' grade point averages of students. Differences in attrition of full-time students from selective and nonselective programs were not found to be significant; however differences in attrition of part-time students and of the total student population from selective and nonselective schools were significant. No significant differences were found between baccalaureate grade point averages for students in selective and nonselective programs and between masters' grade point averages for students in selective and nonselective programs. The correlation coefficient calculated for students' baccalaureate grade point averages and masters' grade point averages was found to be significant for students in selective masters' nursing

programs but not significant for students in nonselective masters' nursing programs.

CHAPTER 5

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This investigation researched the question of whether masters' nursing programs with selective admission processes differed from programs with nonselective admission processes with respect to attrition and final cumulative grade point averages. The results of this study are summarized and discussed in relation to the stated hypotheses. Following these sections, implications and suggestions for further study are addressed.

Summary

A nonexperimental, explanatory study was designed to provide information on masters' nursing program admission processes, attrition, and students' grade point averages. Information on admission processes was obtained from questionnaires mailed to the total population of masters' nursing programs in the United States. Enrollment and withdrawal data, reasons for withdrawal, and students' baccalaureate and masters' grade point averages also were obtained from this questionnaire. A program was designated as having a selective or nonselective admission process based on the

program's disclosure of the presence or absence of certain admission criteria. Attrition rates for selective and nonselective programs were calculated using the enrollment and withdrawal data provided. Reasons for withdrawal were designated as academic or other than academic. The chi square test was performed to determine if significant differences existed between selective and nonselective masters' nursing programs with respect to attrition and reasons for withdrawal.

Students' baccalaureate and masters' grade point averages were used in correlational analysis to determine if baccalaureate grade point averages correlated with masters' grade point averages in selective and nonselective nursing programs. In addition, grade point averages were employed in t test calculations to determine the differences between students' baccalaureate and masters' grade point averages in selective programs from those in nonselective programs. The minimum cumulative baccalaureate grade point averages and the minimum baccalaureate nursing grade point averages used as admission criteria also were subjected to t test computations.

Analysis of these tests indicated that differences in attrition and reasons for attrition of full-time students from selective and nonselective masters' nursing programs were not significant. Differences were significant, however,

in attrition of part-time students and attrition of the total student population from selective and nonselective programs. Correlation coefficients calculated for students' baccalaureate and masters' grade point averages were significant for students in selective programs but not significant for students in nonselective programs. The computed t test demonstrated no significant difference in baccalaureate grade point averages of students in selective and nonselective programs. In addition, no significant difference was computed for masters' grade point averages of students in selective and nonselective programs. The t test calculated for minimum grade point averages used as admission criteria showed no significant differences between the grade point average requirements of the two types of masters' programs.

Conclusions

Based upon the findings of this study the first hypothesis, there is a higher student attrition rate in masters' nursing programs utilizing nonselective admission processes than in those utilizing selective admission processes, was not supported. While the difference in attrition was significant for the total number of students in nonselective programs as opposed to selective programs, the analysis indicated that significantly higher attrition was experienced in the selective programs rather than in the nonselective

programs. Further analysis demonstrated that attrition by part-time students in selective programs was significantly greater than the attrition experienced by part-time students in nonselective programs and significantly greater than attrition experienced by full-time students in either selective or nonselective programs. These findings suggest that attrition from masters' nursing programs may be related to the type of student admitted, full-time or part-time, rather than the type of program in which the student is enrolled.

No significant difference was found between the selective and nonselective programs on reasons for withdrawal. These findings indicate that according to this study, reasons for the attrition experienced by masters' nursing programs are not related to type of admission process.

The second hypothesis formulated for this study suggested a higher master's cumulative grade point average would be revealed for students from programs using selective admission processes than for students from programs using nonselective admission processes. The findings of the study did not substantiate this claim. Thus, it was concluded that masters' grade point averages are not significantly different for students in selective and nonselective masters' nursing programs.

Correlational analysis of baccalaureate and masters' grade point averages revealed the baccalaureate grade point average to be significantly correlated with master's grade point average in selective masters' nursing programs. A significant correlation was not obtained, however, between the baccalaureate grade point averages and masters' grade point averages in nonselective schools.

Implications

The findings of this study imply the selective admission process practiced by many masters' nursing programs does not make a significant difference in students' attrition or completion of the program, reasons for attrition, or final masters' grade point averages. Because this difference between the two groups is not significant perhaps success or withdrawal occurs due to other variables influencing students which have not been appropriately measured by the criteria presently utilized for program admission. Certainly, these results preclude rigid adherence to these criteria and support the practice of flexibility in admission processes.

Attrition from masters' nursing programs seems unavoidable based on the attrition rates experienced by both selective and nonselective programs. However, since attrition does not appear to be related to type of admission

process the possibility again exists there are variables related to attrition and reasons for attrition which are not being considered during the selective or nonselective admission process. Further analysis of other variables associated with attrition may provide a better means for the prediction of student attrition.

The predictor variable, baccalaureate grade point average, showed significant correlation with the criterion variable, master's grade point average, and consequently can be considered a valid predictor of success in selective masters' nursing programs. Why a similar result was not obtained from grade point averages recorded in nonselective programs is not clear given that differences between baccalaureate and masters' grade point averages in selective and nonselective programs were not significant. The zero correlation may have occurred by chance or the grade point averages reported from the responding programs may not have been characteristic of all nonselective programs. Further investigation is necessary to develop any conclusive evidence as to the predictability of masters' grade point averages by baccalaureate grade point averages in nonselective programs.

Recommendations

Based upon the findings of this study several recommendations may be made. First, the study should be repeated with every attempt made to include data from all masters' nursing programs. In this way more conclusive decisions could be drawn given the entire population of masters' programs. The questionnaire used to collect such information should be similar to that prepared for this study; however, appropriate changes include obtaining information on the numbers of full-time and part-time students withdrawing for academic and nonacademic reasons and a listing of the specific nonacademic reasons for withdrawal. This additional data would be useful in the analysis of attrition and reasons for attrition by full-time and part-time students and may begin to explain variations in the type of students enrolled in masters' nursing programs.

Second, restudy of admission criteria, attrition, and grade point averages over a longer period of time should be pursued. The results may reveal a consistency or inconsistency of admission processes and student attrition as they affect master's nursing education and students who enroll in these programs.

Third, similar studies should be initiated in all masters' nursing programs to analyze the relationship of each program's admission process to student attrition and

reasons for attrition. Correlation of predictor variables, such as grade point averages and test scores, with the criterion variable, master's grade point average, also should be analyzed. Only in this manner can programs, with some degree of certainty, predict student success from the criteria required for program admission.

Fourth, based upon the results of this investigation and the review of literature, it seems appropriate to design a master's nursing program with expected outcome behaviors and then admit students on an open-door policy. Student attrition, reasons for attrition, and final masters' grade point averages then could be analyzed to determine if significant differences existed between programs with specific entrance requirements and programs with specific exit requirements.

Fifth, the recent trend of increasing numbers of applicants to graduate nursing programs is likely to continue. Therefore, continuous study of admission criteria as predictors of success in school as well as in the nursing profession seems to be indicated.

APPENDIX A

COVER LETTER AND QUESTIONNAIRE USED
FOR DATA COLLECTION

TEXAS WOMAN'S UNIVERSITY
1130 M.D. ANDERSON BLVD.
HOUSTON, TEXAS 77030

COLLEGE OF NURSING

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March 29, 1979

I am a graduate nursing student at Texas Woman's University working on my master's thesis. This thesis is designed to investigate relationships between admission processes of masters' nursing programs and attrition rates and students' final masters' grade point averages. To facilitate the research it is necessary to obtain information from you regarding your school admission process and your students. Your assistance in supplying such information will be appreciated.

Enclosed you will find a three-part questionnaire concerning your admission process for the 1977 academic year. Please complete Parts I, II, and III according to the directions. If the information requested in Part III cannot be released, disregard that section. Return the completed Parts I and II to me. This information is valuable and necessary for my research. Be assured I will provide for the anonymity of your students and your institution.

For your convenience I am enclosing a stamped, addressed envelope for the return of the questionnaire. I would appreciate your response by April 30, 1979.

My entire research is based on the responses to this questionnaire. Unless a sufficient number of completed questionnaires are returned, I will be unable to pursue this research for my thesis. Your participation, therefore, is requested.

Thank you for your cooperation and assistance. If you have any questions or concerns regarding this research study please feel free to contact me or my thesis advisor.

Sincerely,

Elaine M. Renola

Dr. Carol Adamson, Advisor

PART I

Directions: Please respond to the following questions regarding your admission process utilized for admitting students in 1977. Place an "X" in the appropriate response column for each question. For the open-ended questions, be as specific as possible with your responses.

	<u>Yes</u>	<u>No</u>
1. Do you require graduation from an accredited baccalaureate institution?	_____	_____
2. If yes, do you require the degree be in nursing?	_____	_____
3. Do you require R.N. Licensure (or proof of intent?)	_____	_____
4. Do you require a minimum baccalaureate cumulative grade point average?	_____	_____
5. If yes, what average? _____ (4 point scale)	_____	_____
6. Do you require a minimum baccalaureate nursing grade point average?	_____	_____
7. If yes, what average? _____ (4 point scale)	_____	_____
8. Do you require any standardized test for admission?	_____	_____
9. If yes, do you require the Graduate Record Exam? (If minimum score is required, indicate cut-off score) Verbal _____ Quantitative _____	_____	_____
10. Other standardized tests required. Specify by name and indicate cut-off score. _____ _____	_____	_____
11. Do you require any prerequisite courses?	_____	_____
12. If yes, what is(are) the course(s)? _____ _____	_____	_____
13. Do you require references for admission?	_____	_____
14. Do you require a personal interview for admission?	_____	_____
15. Do you require professional experience post-baccalaureate degree?	_____	_____
16. If yes, how many months or years? _____	_____	_____

- | | <u>Yes</u> | <u>No</u> |
|---|------------|-----------|
| 17. List any other criteria necessary for admission. _____
_____ | _____ | _____ |
| 18. Do you ever admit students who have not met one or more of your criteria? | _____ | _____ |
| 19. If yes, please explain. _____
_____ | _____ | _____ |

PART II

Directions: Please respond to the following questions.
Be as concise as possible.

1. What is the minimum number of credits or hours a student must take to be classified full-time? _____
2. What is the maximum number of credits or hours a student would be allowed to take per semester or quarter? _____
3. Based on the full-time student's progress what is the intended length of time required for program completion? _____
4. How many students did you admit for the 1977-1978 academic year? _____
5. How many full-time students were enrolled for 1977-1978? _____
6. How many part-time students were enrolled for 1977-1978? _____
7. How many full-time students withdrew from school in 1977-1978? _____
8. How many part-time students withdrew from school in 1977-1978? _____
9. Indicate how many students withdrew for each of the following reasons: Academic standing _____
Other _____
10. How many academic failures did you have for the 1977-1978 academic year? _____
11. Please identify the specific degree you grant to graduates of your program. _____

[illegible]

APPENDIX B

t TEST CALCULATIONS FOR GRADE POINT AVERAGES
UTILIZED AS ADMISSION CRITERIA

The t test for minimum baccalaureate grade point averages used as admission criteria for selective and nonselective masters' nursing programs:

$$\begin{array}{lll} n_1 = 39 & n_2 = 9 & \text{Degrees of Freedom} = n_1 + n_2 - 2 \\ \bar{X}_1 = 2.92 & \bar{X}_2 = 2.88 & \text{Level of Significance} = 0.050 \\ S_1 = 0.23 & S_2 = 0.18 & \text{Critical Value} = 2.021 \end{array}$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{S^2/n_1 + S^2/n_2}} \quad \text{where} \quad S^2 = \frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1 + n_2 - 2}$$

$$t = \frac{2.92 - 2.88}{\sqrt{.05/39 + .05/9}} \quad S^2 = \frac{(39-1)(.23)^2 + (9-1)(.18)^2}{39 + 9 - 2}$$

$$t = \frac{.04}{.0827} \quad S^2 = \frac{2.2694}{46}$$

$$t = 0.484 \text{ N.S.} \quad S^2 = .05$$

The t test for minimum baccalaureate nursing grade point averages used as admission criteria for selective and non-selective masters' nursing programs:

$$\begin{array}{lll} n_1 = 4 & n_2 = 21 & \text{Degrees of Freedom} = n_1 + n_2 - 2 \\ \bar{X}_1 = 2.92 & \bar{X}_2 = 2.89 & \text{Level of Significance} = 0.050 \\ S_1 = 0.15 & S_2 = 0.85 & \text{Critical Value} = 2.060 \end{array}$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{S^2/n_1 + S^2/n_2}} \quad \text{where} \quad S^2 = \frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1 + n_2 - 2}$$

$$t = \frac{2.92 - 2.89}{\sqrt{.63/21 + .63/4}} \quad S^2 = \frac{(4-1)(.15)^2 + (21-1)(.85)^2}{4 + 21 - 2}$$

$$t = \frac{.035}{.433} \quad S^2 = \frac{14.5175}{23}$$

$$t = .081 \text{ N.S.} \quad S^2 = .63$$

APPENDIX C

CHI SQUARE CALCULATIONS

Chi square calculation for relationship of outcome after admission for full-time and part-time masters' nursing students:

$$\chi^2 = \sum \frac{(O-E)^2}{E} \quad \text{where } O = \text{observed value} \quad \begin{array}{l} \text{Degrees of Freedom} \\ = 1.000 \\ \text{Level of Signifi-} \\ \text{cance} = 0.050 \\ \text{Critical Value} = \\ 3.841 \end{array}$$

E = expected value

$$\chi^2 = \frac{(234-210.26)^2}{210.26} + \frac{(24-47.74)^2}{47.74} + \frac{(3470-3493.74)^2}{3493.74} + \frac{(817-793.26)^2}{793.26}$$

$$\chi^2 = 2.68 + 11.81 + 0.61 + 0.71$$

$$\chi^2 = 15.36 \quad \text{Significant at } 0.05$$

Chi square calculation for relationship of outcome after admission for full-time masters' nursing students:

$$\chi^2 = \sum \frac{(O-E)^2}{E} \quad \text{where } O = \text{observed value} \quad \begin{array}{l} \text{Degrees of Freedom} \\ = 1.0000 \\ \text{Level of Signifi-} \\ \text{cance} = 0.050 \\ \text{Critical Value} = \\ 3.841 \end{array}$$

E = expected value

$$\chi^2 = \frac{(117-109.68)^2}{109.68} + \frac{(15-22.32)^2}{22.32} + \frac{(2183-2190.32)^2}{2190.32} + \frac{(453-445.68)^2}{445.68}$$

$$\chi^2 = 0.49 + 2.40 + 0.024 + 0.12$$

$$\chi^2 = 3.034 \quad \text{N.S.}$$

Chi square calculations for relationship of outcome after admission for part-time masters' nursing students.

$$\chi^2 = \sum \frac{(O-E)^2}{E} \quad \text{where } O = \text{observed value} \quad \begin{array}{l} \text{Degrees of Freedom} \\ = 1.000 \end{array}$$

$$\quad \quad \quad E = \text{expected value} \quad \begin{array}{l} \text{Level of Signifi-} \\ \text{cance} = 0.050 \\ \text{Critical Value} = \\ 3.841 \end{array}$$

$$\chi^2 = \frac{(117-99.55)^2}{99.55} + \frac{(9-26.45)^2}{26.45} + \frac{(1287-1304.45)^2}{1304.45} +$$

$$\quad \quad \quad \frac{(364-346.55)^2}{346.55}$$

$$\chi^2 = 3.06 + 11.51 + 0.23 + 0.88$$

$$\chi^2 = 15.68 \text{ Significant at } 0.05$$

Chi square calculations for relationship of type of master's nursing program to reason for withdrawal.

$$\chi^2 = \sum \frac{(O-E)^2}{E} \quad \text{where } O = \text{observed value} \quad \begin{array}{l} \text{Degrees of Freedom} \\ = 1.000 \end{array}$$

$$\quad \quad \quad E = \text{expected value} \quad \begin{array}{l} \text{Level of Signifi-} \\ \text{cance} = 0.050 \\ \text{Critical Value} = \\ 3.841 \end{array}$$

$$\chi^2 = \frac{(51-48.98)^2}{48.98} + \frac{(3-5.02)^2}{5.02} + \frac{(183-185.02)^2}{185.02} +$$

$$\quad \quad \quad \frac{(21-18.98)^2}{18.98}$$

$$\chi^2 = 0.0833 + 0.8128 + 0.022 + 0.215$$

$$\chi^2 = 1.133 \text{ N.S.}$$

APPENDIX D

t TEST CALCULATIONS FOR CUMULATIVE BACCALAUREATE
AND MASTERS' GRADE POINT AVERAGES

The t test for cumulative baccalaureate grade point averages for students in selective and nonselective masters' nursing programs.

$n_1 = 30$	$n_2 = 40$	Degrees of Freedom = $n_1 + n_2 - 2$
$\bar{X}_1 = 3.24$	$\bar{X}_2 = 3.02$	Level of Significance = 0.05
$S_1 = 0.38$	$S_2 = 0.79$	Critical Value = ± 2.00
$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{S^2/n_1 + S^2/n_2}} \quad \text{where} \quad S^2 = \frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1 + n_2 - 2}$		
$t = \frac{3.24 - 3.02}{\sqrt{.42/30 + .42/40}} \quad S^2 = \frac{(30-1)(.38)^2 + (40-1)(.79)^2}{30 + 40 - 2}$		
$t = \frac{.22}{.1565} \quad S^2 = \frac{28.5275}{68}$		
$t = 1.41 \text{ N.S.} \quad S^2 = 0.42$		

The t test for cumulative masters' grade point averages for students in selective and nonselective masters' nursing programs.

$n_1 = 40$	$n_2 = 30$	Degrees of Freedom = $n_1 + n_2 - 2$
$\bar{X}_1 = 3.55$	$\bar{X}_2 = 3.44$	Level of Significance = 0.05
$S_1 = 0.32$	$S_2 = 0.27$	Critical Value ± 2.00
$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{S^2/n_1 + S^2/n_2}} \quad \text{where} \quad S^2 = \frac{(n_1-1)S_1^2 + (n_2-1)S_2^2}{n_1 + n_2 - 2}$		
$t = \frac{3.55 - 3.44}{\sqrt{.09/40 + .09/30}} \quad S^2 = \frac{(40-1)(.32)^2 + (30-1)(.27)^2}{40 + 30 - 2}$		
$t = \frac{.11}{.0725} \quad S^2 = \frac{6.1077}{68}$		
$t = 1.52 \text{ N.S.} \quad S^2 = 0.09$		

APPENDIX E

CORRELATION COEFFICIENT CALCULATIONS

Correlation coefficient calculations for baccalaureate and masters' grade point averages of students from selective masters' nursing programs.

Number of GPAs = 40 Σx = 120 Σxy = 430.69

Level of Significance = 0.05 Σy = 140.02 $(\Sigma x)^2 = 14628.90$

Critical Value = 0.312 $\Sigma x^2 = 390.23$ $(\Sigma y)^2 = 19605.60$
 $\Sigma y^2 = 508.29$

$$\underline{r} = \frac{n (\Sigma xy) - (\Sigma x) (\Sigma y)}{\sqrt{n (\Sigma x^2) - (\Sigma x)^2} \cdot \sqrt{n (\Sigma y^2) - (\Sigma y)^2}}$$

$$\underline{r} = \frac{40(430.69) - (120.95)(140.02)}{\sqrt{40(390.23) - 14628.90} \cdot \sqrt{40(508.29) - 19605.60}}$$

$$\underline{r} = \frac{292.181}{843.616}$$

$$\underline{r} = 0.35 \quad \text{Significant at } 0.05$$

Correlation coefficient calculations for baccalaureate and masters' grade point averages of students from non-selective masters' nursing programs.

Number of GPAs = 30 $\Sigma x = 97$ $\Sigma xy = 334.13$

Level of Significance = 0.05 $\Sigma y = 103.04$ $(\Sigma x)^2 = 9467.29$

Critical Value = 0.361 $\Sigma x^2 = 319.76$ $(\Sigma y)^2 = 10617.24$

$\Sigma y^2 = 356.20$

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{n(\Sigma x^2) - (\Sigma x)^2} \cdot \sqrt{n(\Sigma y^2) - (\Sigma y)^2}}$$

$$r = \frac{30(334.13) - (97.30)(103.04)}{\sqrt{30(319.76) - 9467.29} \cdot \sqrt{30(356.2) - 10617.24}}$$

$$r = \frac{-1.892}{92.896}$$

$$r = -0.0204 \text{ N.S.}$$

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