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A Study of Grade Distribution and Grade-Point Averages of the Tennessee Board
of Regents Associate-Degree Nursing Programs

A dissertation

presented to

the faculty of the Department of Educational Leadership and Policy Analysis
East Tennessee State University

In partial fulfillment

of the requirements for the degree

Doctor in Education

by

MaryLou Reagan Apple

May 2002

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Dr. Russell West
Dr. Russell Mays
Dr. Joellen Edwards

Keywords: Grade Distribution, Grade Inflation, Associate-Degree Nursing,
Nursing Admission Criteria, Nursing

ABSTRACT

A Study of Grade Distribution and Grade-Point Averages of the Tennessee Board of Regents Associate-Degree Nursing Programs

by

MaryLou Reagan Apple

Grade inflation has occurred in postsecondary institutions and has been accompanied by a concomitant rise in grade-point average. Nursing educators are expected to prepare competent future nurses. Because many nursing programs use grade-point average as admission, retention, and progression criteria, it is imperative that grades accurately reflect each student's proficiency.

This study assessed whether grade inflation had occurred between 1995 and 2000 in Tennessee Board of Regents Associate-Degree nursing programs and evaluated the use of grade-point averages as effective criteria for admission, retention, and progression or as predictors of success. The population included 1,256 students who were enrolled in the class of 1995 and in the class of 2000 in eight associate-degree nursing programs.

The majority of the colleges' cumulative mean nursing admission and graduating grade-point averages had not changed significantly between the class of 1995 and the class of 2000. A majority of the colleges did not have statistically significant higher mean clinical nursing grades or an increase in the percentage of the grade of B and higher awarded between the class of 1995 and the class of 2000. The findings did not indicate grade inflation had occurred in clinical nursing courses.

The majority of the colleges' results indicated a significant association existed between the cumulative mean nursing admission grade-point average and successful completion of the nursing program in both the class of 1995 and the class of 2000. The results support the high standards needed in nursing education to ensure that graduates are competent, safe practitioners.

DEDICATION

I would like to dedicate this study to the following special people who were supportive during all the years of my being a student.

To my husband, Jim Apple, and to my children, Wendi and Benjamin Cook, I thank you for understanding my desire to accomplish this goal and for your unfaltering patience, love, and encouragement.

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CHAPTER 1

INTRODUCTION

Grade inflation has occurred in postsecondary institutions and has been accompanied by a concomitant rise in grade-point averages (GPAs). A national study by Levine (1994) from 1969 to 1993 indicated, "The proportion of students with grade-point averages of A- or higher almost quadrupled.... In contrast, the number of students with GPAs of C or lower dropped by about two-thirds" (p. B3). Nursing educators are obligated as professionals to prepare knowledgeable, skilled, and competent future nurses. Nursing faculty and administrators need to assure that reliable grading standards are maintained (Shoemaker & DeVos, 1999).

Because many nursing programs use minimum GPAs as admission, retention, and progression criteria, it is imperative that grades accurately reflect each student's proficiency. If grading distributions have changed over time, then the practice of using a long-standing established minimum GPA might be unreliable. This study involved research on grade distributions and GPAs from Tennessee Board of Regents (TBR) community colleges with associate-degree nursing programs. The TBR is the governing board for all institutions of public higher education in Tennessee, except for the three campuses of the University of Tennessee System. TBR is composed of 6 universities, 13 community colleges, and 26 area technology centers serving Tennessee (Walters State Community College, 2001).

The general public has high expectations of postsecondary institutions. Kaplin and Lee (1995) stated, "When an educational institution issues a diploma to one of its students, it is, in effect certifying to society that the student possesses all the knowledge and skills that are required of his chosen discipline" (p. 471). Nursing programs must not only meet the standards of higher education but are also obligated to ensure the safety of the public.

The standard set by the American Nurses Association (1985) calls upon nursing to be "...responsible and accountable for admitting to the profession only those individuals who have demonstrated the knowledge, skills and commitment considered essential to professional practice" (p. 13). Nursing educators must establish and adhere to standards and competencies that protect the health and welfare of the public. Many elements are involved in maintaining a nursing education program of high quality. One of the most critical responsibilities is to ensure that only individuals who meet the nursing program requirements and standards graduate. Nursing programs establish admission, progression, retention, and graduation policies to ensure that students meet minimum academic requirements. Each nursing program develops admission requirements as the first step in identifying students who are likely to be capable of achieving the competencies needed to succeed in nursing. The second step is to ensure that only qualified individuals are retained in the program. Grade-point average is often used as a criterion in each step.

Although much has been written regarding grade inflation in colleges and universities, no studies were found on grade inflation in nursing education (Shoemaker & DeVos, 1999). Specifically, no published studies were located that considered the impact of grade inflation on using GPAs as admission, progression, and retention criteria or as predictors of success in associate-degree nursing programs. A change in the distribution of grades, such as grade inflation, could reduce the reliability of long-standing established minimal GPAs as criteria for admission, retention, and progression. Shoemaker and Devos (1999) warned, “Grade inflation may contribute to an unrealistic assessment of the ability of the applicant to succeed in the program” (p. 396). If minimum GPA requirements for admission, retention, and progression were selected before grade inflation occurred and former “D” students are now “C” students, then the students with lesser abilities are still meeting the admission requirements. Nursing educators would benefit by learning more about grade inflation relative to using GPAs as criteria.

Background of the Problem

Although several articles have been written alluding to grade inflation in the Tennessee higher education system, none has provided statistical data. Many of the TBR deans and directors of nursing have voiced concerns over the past three years regarding the applicant pool for nursing programs. Overall, the concerns included a decrease in the number of applications, a decline in the quality

of the applicants, and a rise in attrition in nursing education. The process of teaching critical thinking skills needed to pass the National Council Licensure Examination for Registered Nurses (NCLEX-RN) has become a challenging task (Tennessee Board of Regents deans and directors of nursing meeting, September 7, 2000).

It is imperative that nursing students have the ability to think critically, analyze problems, and make accurate decisions. Most community colleges' nursing application processes include minimum GPAs as requirements for admission. A national study by Schwirian (1978) indicated that college grade-point average was considered a good predictor of success. If grade inflation has occurred in Tennessee associate-degree nursing programs, then the reliability of using a particular established long-standing minimum GPA as a criterion or predictor has been compromised. Each nursing program needs to conduct research that will result in nursing educators improving their ability to select students who are capable of meeting the standards required of registered nurses.

Statement of the Problem

One aspect of this study was to assess whether grade inflation had occurred from 1995 to 2000 in TBR associate-degree nursing programs and to evaluate the use of GPAs as criteria for admission, retention, and progression or as predictors of success. No studies were located regarding grade inflation, grade compression, or the effects of these on using GPAs as admission criteria and indicators of

success in associate-degree nursing programs. If grade inflation had occurred, then nursing educators could assess the need to increase the minimum GPA required for admission or re-evaluate the effectiveness of continuing to use GPAs as admission criteria.

Research Questions

The following questions guided the study:

1. Is there a difference in the cumulative mean nursing admission GPAs between the TBR community college spring semester associate-degree nursing students in the class of 1995 and in the class of 2000?
2. Is there a difference in the cumulative mean graduation GPAs between the TBR community college spring semester associate-degree nursing graduates in the class of 1995 and in the class of 2000?
3. Is there a difference in the mean grades earned each semester in clinical nursing courses between the TBR community college spring semester associate-degree nursing students in the class of 1995 and in the class of 2000?
4. Is there a difference in the percentages of grade B and higher and the grade C and below earned each semester in clinical nursing courses between the TBR community college spring semester

associate-degree nursing students in the class of 1995 and in the class of 2000?

5. Is there a relationship between cumulative mean nursing admission GPAs and successful completion of the nursing program for TBR community college spring semester associate-degree nursing graduates in the class of 1995 and in the class of 2000?
6. Is there a relationship between cumulative mean nursing admission GPAs and success on the NCLEX-RN for TBR community college spring semester associate-degree nursing graduates in the class of 1995 and in the class of 2000?

Significance of the Study

The American Nurses Association (1995) provided statements regarding the relationship between society and nursing. The policy stated, “Nursing, like other professions, is responsible for ensuring that its members act in the public interest in the course of providing the unique service society has entrusted to them” (p. 17). The scope of nursing practice “...has a flexible boundary that is responsive to the changing needs of society and the expanding knowledge base of its theoretical and scientific domains” (p. 12). Society depends on nurses to have the knowledge and problem-solving capabilities to make critical, even life-saving, decisions. The possibility of grade inflation in nursing is of critical importance to

society because the practice of using GPAs for program selection, retention, and progression and as graduation requirements is widespread. If a nursing student graduates without a solid foundation of nursing knowledge, which is the basis for problem solving and decision-making, the ability to assure safety becomes a major concern.

Nurse educators have an enormous task to ensure the health and safety of the public. As the graying of America is occurring, a nursing shortage is emerging. Campbell and Dickson (1996) stressed the need to improve student retention in nursing programs: "A major challenge for nurse educators during this era of health care reform will be to produce a steady supply of nurses whose preparation and capabilities reflect the expansion of nursing knowledge, skills and abilities" (p. 47).

Reliable student selection, retention, progression, and predictors of success would benefit students, nursing programs, and society in general. Yang, Glick, and McClelland (1987) emphasized, "The ability to identify candidates that are likely to succeed facilitates planning and conserves student and educational resources" (p. 301). To remain competitive and accountable, it is imperative for nursing programs to have reliable criteria.

Nursing educators often find themselves struggling to achieve high licensure exam passing rates and acceptable retention rates while at the same time ensuring that only committed, knowledgeable, skillful individuals graduate.

Consequently, nursing educators are not only responsible to the public to provide competent practitioners and to meet all state board of nursing and accreditation requirements but also to complete this task in a cost-effective manner that indicates fiscal accountability. Nursing programs must maintain high academic standards but also must have reliable admission requirements that help to select those students who are most likely to succeed. The progression and retention criteria need to ensure that students who do graduate are competent, trained, safe practitioners capable of successfully passing the NCLEX-RN. Responsive standards such as these would also ensure accountability to the students who are trusting that the programs will provide quality education.

This research will benefit society in general and nursing by using the results to support high standards that are needed in nursing education to ensure that graduates are competent, safe practitioners. Community college nursing educators involved in this study may request and receive institution-specific statistical information to use as a foundation to determine if further study is needed.

Delimitations

1. This study limited the population to first-attempt nursing admissions in public TBR community college associate-degree nursing programs.

2. This study did not include Licensed Practical Nurse (LPN) to Registered Nurse (RN) students who entered associate-degree nursing programs through career mobility articulation.
3. This study compared the class of 1995 with the class of 2000.
4. This study did not address causation of grade inflation.

Limitations

This quantitative study was limited by the fact that the social, cultural, gender, and ethnic environments were expected to vary among institutions, instructors, and students. In addition, the admission criteria and associated required minimum college GPA varied among institutions.

Assumptions

1. The data collected and the SIS records maintained on all graduates were accurate.
2. The data collected from the hard copies of the NCLEX-RN were accurate.
3. The NCLEX-RN examinations completed by nursing classes from 1995 to 2000 were equivalent exams.
4. The NCLEX-RN is reliable and valid.
5. The grades assigned to the class of 1995 and the class of 2000 were based on evaluation criteria as stated by each faculty member.

Definitions

The following definitions were used as a framework for the study:

1. An associate-degree nursing program is a nursing program leading to an associate degree within the structure of a junior or community college (Tennessee Department of Health, 1996).
2. Grades are based on a 4.0 quality-point system, in which the following letter grades correspond with a certain number of quality points awarded per semester hour completed: A=4.0, B=3.0, C=2.0, D=1.0, and F=0.0 (Starke & Bear, 1988).
3. Cumulative grade-point average is the average calculated by dividing the total number of quality points earned by the total number of semester hours attempted (Walters State Community College, 2001).
4. The nursing admission grade-point average is the cumulative grade-point average at the end of the semester prior to enrolling in the first clinical nursing course.
5. The class of 1995 is the group of students that was admitted for the first time in the first clinical nursing course in the fall semester of 1993 and was expected to graduate in the spring semester of 1995.

6. The class of 2000 is the group of students that was admitted for the first time in the first clinical nursing course in the fall semester of 1998 and was expected to graduate in the spring semester of 2000.
7. Grade inflation is a rise in mean GPA and an increase in the percentage of As and Bs awarded (Goldman, 1985).
8. Successful completion of the associate-degree nursing program refers to the student who completed the program within two academic years.
9. Success in passing the NCLEX-RN describes a student who achieves a pass rating as a first-time writer.
10. Withdrawal after the official enrollment date is defined as any student who requested to withdraw, regardless of the reason, after the 14th day enrollment date.
11. Nursing academic failure is defined as any student earning a grade below C or withdrawing after the official enrollment date.

Overview

“Nursing education has a twofold accountability, for it must meet the needs of students for a quality education and society’s need for professionals capable of delivering nursing care” (Felts, 1986, p. 372). Nurse educators must examine nursing grade distributions and intervene if grade inflation has occurred.

Chapter 2 is a review of the literature. The review begins with an overview of the expectations of higher education and nursing. A brief review of grading systems used in higher education is included. Legal responsibilities of nursing are then presented, including the licensure process. The concept of grade inflation, including the historical review of the discovery, results of studies conducted within various educational disciplines, and probable causes of grade inflation are presented. The literature review concludes with studies indicating how grades have been used as criteria and as predictors of success in associate-degree nursing.

Chapter 3 describes the research design and methods. Research hypotheses are presented. The design and specific data collection methods are explained.

Chapter 4 presents an analysis of the data. The research findings are presented in summary data tables.

The 5th chapter presents conclusions and recommendations. Specifically, recommendations are made for further study and to improve practice.

CHAPTER 2

REVIEW OF THE LITERATURE

There has been a growing concern in America that educational institutions are not teaching students what they need to be successful. Educational systems have used a grading system to indicate student achievement. As the average grade earned has risen, the question of grade inflation has been raised. Numerous disciplines have studied grade inflation in their educational programs. No such studies have been found that were conducted in the discipline of nursing. Specifically, no studies have been located that considered the impact grade inflation would have on the reliability of using GPAs as admission, progression, and retention criteria or as predictors of success on the NCLEX-RN.

The literature review was conducted by searching preliminary, primary, and secondary sources. Librarians from East Tennessee State University, Walters State Community College, and The University of Tennessee-Knoxville were consulted. Using a computer, the Educational Resources Information Center (ERIC), PsycLit, CINAHL (nursing), Lexis-Nexus, and Dissertation Abstracts were accessed. A librarian at East Tennessee State University conducted a mediated database search. The following descriptors were used to direct the database search: grade inflation, grades, grade compression, nursing education, associate-degree nursing, and grades as criteria and predictors of success. The

current hard copies of ERIC publications: *Current Index to Journals in Education* (CIJE) and *Resources in Education* (RIE) were also used as resources.

Overview of the Expectations from Higher Education

The general public has expectations of higher education. “Great Expectations”, a report cited on the Internet summarizing a survey of the public’s opinion of higher education, concluded, “The public holds a long list of expectations for higher education institutions. Colleges should help students develop maturity, organizational skills and an ability to get along with others, and should provide specific skills, such as problem-solving and communication” (Immerwahr, 2000). Educational institutions are tasked with raising the competencies of citizens. Community college settings often have an even greater challenge because, “They educate the most deficient students, those who would otherwise be lost to our society, and prepare them for employment and personal advancement” (McCabe, 2001, p. 1).

Associate-degree nursing programs offered in community college settings are not only expected to meet the expectations society holds for higher education but are also obligated to instill professionalism. The American Nurses Association (1985) developed a code for nurses that in part states "...nursing educators have a major responsibility for ensuring that individuals have demonstrated required competencies and indicate a commitment to professional practice before entry into the practice of professional nursing” (p.13). While community colleges are often

known for their “open-door” philosophy, given the significance of the expectations from nurses, it is important for nursing education to have fair policies while maintaining the level of competency required to practice nursing.

Nursing education is also required to meet many quality benchmarks to demonstrate accountability. Unfortunately, the assessment process often becomes a political process. This often leads to education focused on a specific task rather than standards. In the state of Tennessee, the Tennessee Higher Education Commission developed the Performance Funding program as a financial incentive program designed to emphasize quality instead of quantity in academic programs and to provide accountability to legislators, citizens, and students. According to the Tennessee Higher Education Commission Internet site, during the 1998-99 academic year, over \$7 million was appropriated to community colleges through the performance-funding program. Public educational institutions in Tennessee can "...earn a budget supplement of approximately 5.45% of the instructional component of its education and general budget" (Tennessee Higher Education Commission, 2001). The funding earned is based on four performance standards. Each standard has an assigned point value, with a maximum total of 100 points. Certain standards are specific to individual programs, such as nursing. Specifically, standard one relates to program accreditation and major field-testing (Tennessee Higher Education Commission, 2001).

Currently the only national accreditation agency for associate-degree nursing programs recognized by the U.S. Department of Education is the National League for Nursing Accrediting Commission (NLNAC). The accreditation criteria include evaluation of benchmarks regarding attrition, retention, graduation rates, success rates on NCLEX-RN for first-time writers, and job placement rates (National League for Nursing Accrediting Commission, 2001). Achieving these benchmarks and meeting performance funding standards will become more difficult if criteria used to evaluate students, such as GPA, are not reliable indicators.

Major-field testing is another performance funding standard. The nursing graduates' major field test is the NCLEX-RN. Each academic year, every TBR institution must compare the nursing graduates' results on the NCLEX-RN to the national and state pass rates. The institution earns points based on the graduates' scores (Tennessee Higher Education Commission, 2001).

Most nursing programs require a minimum GPA as a criterion for admission, progression, and retention. If students graduate but are unsuccessful on the major field exam, the nursing program's existence is at risk. Students who were unsuccessful on the NCLEX-RN may not practice as registered nurses, and this affects the number of nurses available for employment. A low NCLEX-RN passing rate also could "...jeopardize the school's State Board accreditation, thus, nursing program faculty take the scores very seriously" (Vance & Davidhizau,

1997, p. 190). In addition, funding based on performance indicators would be lost if NLCEX-RN passing rates were below national and state averages. Rosnick (2000) stated, “Accountability and the impetus for improvement must come from within.... We must... resolve to raise the bar we set in the classroom” (p. 13). Student assessment must be rigorous and creative. Rosnick also warned, “Concern for the well being of a student should not be confused with a relaxation of personal standards and expectations” (p. 13).

In addition to ensuring public safety and demonstrating accountability, the issue of financial stewardship is important. The TBR nursing schools are dedicated to being quality, cost-effective educational programs. Each higher education institution in the Tennessee Board of Regents system annually submits an appropriation request to the Tennessee Higher Education Commission (THEC). THEC provides each school with a student ratio formula. Funding is determined in part by the number of faculty needed as indicated by the formula. The number of students per faculty member allowed for each academic area is given. Lower student-faculty ratios are required for health professions programs with clinical requirements. Community colleges' (level 1) health professions programs with clinical components for the 2000-2001 academic year had a 10:1 student-faculty ratio, compared to trades and industrial training, with an 18.9:1 ratio, whereas English language and literature had a 21:1 ratio. Nursing programs, because of

their clinical components, require an even greater financial commitment due to their low student-to-faculty ratio (R. G. Rhoda, memorandum, August 28, 2000).

Review on Grading Systems

As members of the profession of nursing and faculty of an educational institution, nurse educators have an enormous responsibility to society. Nursing programs develop numerous standards to maintain a high quality nursing education program. One of the quality benchmarks is to ensure that only individuals with the ability to be successful are admitted into the program and only individuals who meet the standards graduate. Various evaluation methods are used to achieve this benchmark. Examinations are one method of evaluation. Students earn grades that indicate their success in meeting course and program requirements. Minimum GPAs are often used as criteria for admission, progression, and retention and as predictors of success for the NCLEX-RN (Campbell & Dickson, 1996).

The students earn grades by demonstrating proficiency. The faculty of each college course provide the student with learning objectives, required outcomes, and grading evaluation criteria. The grades earned by students indicate their success in meeting course and program requirements.

Starke and Bear (1988) stated that educational grading systems had been in existence for hundreds of years. In the early 1900s, Starch and Elliott (1913) conducted a study that indicated the variation and differences of grading among

secondary mathematics teachers when evaluating the same geometry final examination. As a result of that study, Starch (1918) advised teachers to use a five-point normal curve grading scale that would lead to more consistent grading. The five-point scale corresponded to the letter grades.

One of the most common grading systems is based on a 4.0 quality-point system in which the following letter grades correspond with a certain number of quality points awarded per semester hour completed: A=4.0, B=3.0, C=2.0, D=1.0 and F=0.0 (Starke & Bear, 1988). The student's academic standing is expressed in terms of a grade-point (quality-point) average. A cumulative GPA is calculated by dividing the total number of quality points earned by the total number of semester hours attempted (Walters State Community College, 2001).

Today, the five-point grading scale is still in use. According to a 1986 study conducted by Starke and Bear (1988), "91% of America's four-year colleges graded their students on an ABCDF system" (p.63). Of the 91% of colleges that used the ABCDF system, the letter grades corresponded to a 4.0 quality-point scale in all but one college. The study was conducted on four-year colleges and universities in America. The sampling selection method and return rate are important to interpretation of the results.

The sample was first selected by random sampling. However, when only 45 of the 109 colleges randomly selected responded, an additional 64 colleges were selected. The college listed immediately following an institution that had not

responded was the method used to select the additional 64 colleges. Even after sending additional surveys, the response rate was only 60%. The authors recommended using "...caution in drawing conclusions from our data. It is possible that we have not achieved a random sample by virtue of the fact that our response rate was only 60%" (Starke & Bear, 1988, p. 67). The caution seemed appropriate because the method used to select additional samples did not meet the definition of a random sample. According to Gall, Borg, and Gall (1996), a random sample is "... a group of individuals drawn by a procedure in which all the individuals in the defined population have an equal and independent chance of being selected as a member of the sample" (p. 223). Of particular significance is the meaning of the term independent. The authors defined independent by the statement that "...the selection of one individual for the sample has no effect on the selection of any other individual" (p. 223). In the study by Starke and Bear (1988), the additional samples were selected based on the position of the institution in relationship to the non-reporting institutions.

Legal Responsibilities of Nursing

State laws are involved in regulating the profession of nursing. In the early 20th century, state boards of nursing were formed to set standards, develop rules, and approve nursing education. The purpose of the board was to protect the health, safety, and general welfare of the public (National Council of State Boards of Nursing, Inc., 1997). In the state of Tennessee, the Tennessee State Board of

Nursing is responsible for regulating nursing practice and nursing education. In particular, the *Law Regulating the Practice of Nursing* states the "...practice of professional nursing means the performance for compensation of any act requiring substantial specialized judgement and skill based on knowledge of the natural, behavioral and nursing sciences, and the humanities" (Tennessee Department of Health, 1994, p. 3). One of the requirements for eligibility to write for the registered nurse licensure examination is successful completion of an approved school of nursing program. The board of nursing for each state is responsible for approving nursing education programs and sets specific guidelines for curriculum and administration. The associate-degree nursing program is one educational pathway for students to be eligible to write for the NCLEX-RN exam and, thereby, become a registered nurse.

The National Council of State Board of Nursing, Inc. (2000) stated, "Entry into the practice of nursing in the U.S. and its territories is regulated by the licensing authorities within each jurisdiction" (p.3). Each state board of nursing uses the NCLEX-RN to make licensure decisions. The National Council of State Boards of Nursing (National Council) is responsible for developing the NCLEX-RN. The mission of the National Council "...is to lead in regulation by assisting member boards, collectively and individually, to promote safe and effective nursing practice in the interest of protecting public health and welfare" (National Council of State Boards of Nursing, Inc., 2000, p.1). Lauchner, Newman, and

Britt (1999) stated that nursing licensure exams "...are high stake exams for students, nursing faculty, and college and university administrators. Failure of the exam has financial as well as emotional consequences for students" (p. 120). The NCLEX-RN exam is given by a testing center. The test is a computerized adaptive test (CAT). Test questions are written according to Bloom's taxonomy cognitive domains of knowledge, comprehension, application, and analysis (National Council of State Boards of Nursing, Inc., 2000). Synthesis and evaluation, the last two levels in Bloom's taxonomy, is normally assessed in the clinical setting.

In 1956, a committee of the American Council on Education published the classifications of the cognitive domain. Benjamin Bloom and his associates developed the cognitive taxonomic classification system. The classification system is composed of the following six levels: knowledge, comprehension, application, analysis, synthesis, and evaluation. Knowledge, the first level, is the act of identifying or knowing. The second-through-fifth levels continue to build upon each other from simple to complex behavior. Evaluation, the sixth level, requires the ability to evaluate and make judgements. Each level requires a higher level of mental processing (Bloom, Engelhart, Furst, Hill, & Kathwohl, 1956).

The National Council of State Boards of Nursing, Inc. (2000) explained, "Since the practice of nursing requires application of knowledge, skill and abilities, the majority of questions in the exam are written at the application and/or

analysis level of cognitive abilities, which requires more complex thought processing" (National Council of State Boards of Nursing, Inc., 2000, p. 4). Each test question has a pre-established level of difficulty. "As the candidate answers each question, the computer calculates a competence estimate based on all earlier answers" (National Council of State Boards of Nursing, Inc., 2000, p. 9). The computer continues to select a question and level of difficulty until all areas of the test plan are covered. The examination ends when the candidate has reached the pass or fail level, has answered the maximum of 265 questions, or has reached the maximum 5-hour limit (National Council of State Boards of Nursing, Inc., 2000).

The Tennessee Board of Nursing requires each candidate for licensure to have graduated from an approved nursing program. NCLEX-RN test results of Tennessee candidates are sent to the Tennessee State Board of Nursing. "To ensure public protection, each jurisdiction requires a candidate for licensure to pass an examination that measures the competencies needed to perform safely and effectively as a newly-licensed, entry-level registered nurse" (National Council of State Boards of Nursing, Inc., 2000, p.3). When the candidate meets all the licensing requirements, a license is issued to the candidate.

The *Administrative Rules of the Tennessee Board of Nursing* (1996) list the specific guidelines and standards for schools of nursing to receive approval. The regulation, under the area of student selection and admission in part states,

“Admission practices shall be based on stated criteria for selection and admission of students” (Tennessee Department of Health, 1996, p. 12).

One of the major concerns during a nursing shortage is the pressure to "...reduce the requirements for entry into the profession by decreasing the passing standard of the licensing examination and/or waiving requirements for licensure.... Such pressures concern the regulatory and professional nursing communities because the public may be adversely affected by the licensing of individuals who fail to meet the requirements of minimal competence" (American Nurses Association Board of Directors, 1992, p.3).

Grade Inflation

Historical Review

Letter grades are the most common indicators of meeting educational standards. The subject of grading has been a debated issue for years. Research on grade inflation has been erratic and diverse. In the past 20 years, the distribution and fluctuation of grades has become a controversial issue. On any given day, local newspapers, popular magazines, or educational literature publishes an article about the educational system. One aspect that has been mentioned in many articles is the concept of grade inflation. Hadley and Vitale (1985) defined grade inflation as "...a progressive rise in GPA without a concurrent rise in student ability" (p. 124). Goldman (1985) defined grade inflation as an increase in the

number of A and B grades and "...an upward shift in the grade-point average (GPA) over an extended period of time" (p. 98).

Grades also have been challenged in the legal arena. "Disappointed students have sued over grades...such as the remarkable 1980s lawsuit in which a student sued her institution for \$125,000 after an instructor gave her a B+ grade, which she claimed should have been an A-" (Kaplin & Lee, 1995, p. 1). In general, courts have been reluctant to rule in issues regarding academic standards. A 1989 lawsuit, *Susan M. v. New York Law School*, 544 N.Y.S.2d 829 (N.Y. APP. Div. 1989), reversed, 556 N.E.2d 1104 (N.Y. 1990) challenged grades in two law courses. The result from the state's highest court stated:

As a general rule, judicial review of grading disputes would inappropriately involve the courts in the very core of academic and educational decision making. Moreover, to so involve the courts in assessing the propriety of particular grades would promote litigation by countless unsuccessful students and thus undermine the credibility of the academic determinations of educational institutions. We conclude, therefore, that, in the absence of demonstrated bad faith, arbitrariness, capriciousness, irrationality or a constitutional or statutory violation, a student's challenge to a particular grade or other academic determination relating to a genuine substantive evaluation of the student's academic capabilities, is beyond the scope of judicial review [556 N.E.2d at 1107]. (as cited in Kaplin and Lee, 1995, p. 474)

A recent ruling by the U.S. Court of Appeals for the Third Circuit has surprised and alarmed college faculty members. A featured article by Jacobson in the May 11, 2001, issue of *The Chronicle of Higher Education* was entitled, "Court says public university can fire professor for refusing to change a grade" (p.

A14). In 1996, a California University of Pennsylvania tenured faculty member filed a lawsuit against the president of the university for firing him after he had refused to change a student's failing grade. The federal appeals court ruled that the faculty member's right to academic free expression was not violated. The ruling stated that faculty members were agents of the university regarding the First Amendment and therefore, "...the assignment of the grade is subsumed under the university's freedom to determine how a course is to be taught....We therefore conclude that a public-university professor does not have a First Amendment right to expression via the school's grade-assignment procedures" (Jacobson, 2001, p. A14).

The 1993 Wingspread report on higher education stated surveys conducted on four-year graduates revealed that one half of the graduates could not understand a bus schedule. In addition, "56.3 percent of American-born, four-year college graduates are unable consistently to perform simple tasks, such as calculating the change from \$3 after buying a 60 cent bowl of soup and a \$1.95 sandwich" (Wingspread Group on Higher Education, 1993, p. 6). Sykes (1995) reported the results of a Gallup survey that indicated one in seven adults couldn't locate the United States on a world map. Grade inflation is a very serious problem that eventually could lead to a society in which people who possess educational degrees are not capable of writing simple letters, calculating change in a store, or reading and comprehending a short story.

Results of Earlier Studies

Such universities as Princeton and Harvard have conducted studies comparing the percentages of As given to students in undergraduate courses in the 1970s with those in the 1990s. Other institutions have compared GPAs of the two different groups. Those studies indicated a rise in the number of As given and also a rise in average GPAs since the 1970s (Wilson, 1999). The belief is that students today have higher GPAs but have not necessarily shown increases in demonstrated capabilities or knowledge. Thus, the concept of grade inflation was developed.

Cizek (1996) stated that the change in grading patterns was not grade inflation but rather grade compression. "Once you hit the end of the scale--the A grade--then you're stuck; there's nothing higher. So, a D might become a C, and a C might inflate to a B, but in the end it all has to stop at the A" (Cizek, 1996, p. 32).

Lanning and Perkins (1995) presented a historical account of grade inflation. The concept of grade inflation was first described in the 1970s during the Vietnam era. Students with low or failing grades were likely to be drafted. Educators were faced with a serious dilemma of knowing that assigning a low or failing grade might be the event that would place a young person on the frontline of a raging war.

Bejar and Blew (1981) conducted a meta-analysis on freshman baccalaureate student grades from 1964 to 1978. The study clearly identified the

sample characteristics and limitations. The findings indicated a rise in GPA without a corresponding increase in SAT scores. The results indicated that grade inflation had been occurring since 1964 but appeared to have been slowing since 1974. The results of a major study by Juola (1976) were similar to findings by Bejar and Blew (1981). Juola indicated grade inflation had occurred regardless of geography, age, curriculum, or declared majors. The study indicated grade inflation had occurred in Liberal Arts, Science or Technology, Business, and Education. A later study by Juola (1980) also indicated grade inflation had slowed since 1975.

Adelman (1985) conducted a study from 1964 to 1982 on standardized test scores of college graduates. Approximately 550,000 student scores were analyzed. While the findings indicated a decline in the standardized test scores of college graduates, the author stressed that although the analysis was a reflection of one change in the quality of student learning, but "...should not be the principal indicator of quality in American higher education" (p. 35). Student learning is only one of many variables that needs to be included when measuring the overall quality of American higher education. Adelman (1985) stated that the objective of higher education included more than an examination could measure.

During the 1980s, Starke and Bear (1988) studied the topic of grade inflation. Of the four-year American colleges and universities using the ABCDF grading system that responded, "A or even A+ was the grade most often awarded

at 34% of the institutions in spring 1986. At an additional 56%, the modal grade was B or B+" (p. 62). The findings indicated "...a shift away from the notion that C is the grade awarded for average work at American institutions of higher education" (p. 67).

Kuh and Hu (1999) conducted a study on the increase in college grades from the mid-1980s to the mid-1990s. The sample included over 50,000 students from different institutions of higher education and various disciplines. The findings revealed that grade inflation had occurred "...at research universities and selective liberal arts colleges, while grade deflation occurred at general liberal arts colleges and comprehensive colleges and universities in the humanities and social sciences" (p. 297).

Olsen (1995) conducted a study investigating grade inflation from 1975 to 1994 at Brigham Young University. Grade inflation was found in several individual departments and was more prevalent during the spring/summer terms. Olsen discovered that variation in grading among faculty was a contributing factor.

Landrum (1999) surveyed 278 college students in a large western university enrolled in five different courses. The survey asked students to assess their work and then list their expected final grades. "The results indicated a significant degree of expected grade inflation. That is, large proportions of students doing

superior and average work expected As, and almost half the students in the sample reported doing average work yet expected to receive a B" (p. 124).

Since 1993, Georgia's state merit-based HOPE scholarship program has provided 160 million dollars to Georgians. Student recipients are required to maintain a B average. The mean GPA of entering University of Georgia freshmen rose from 3.33 in 1993 to 3.52 in 1997; although entering freshmen had higher grade averages, the average score on the SAT had not increased. The percentages of As and Bs earned by the freshmen at the University of Georgia grew from 50.7% in 1993 to 62.7% in 1996 (Healy, 1997).

The pressure on University of Georgia students to maintain a B average and pressure upon faculty to maintain enrollment were stated as potential causes of grade inflation. Students acknowledged balancing their class schedules by taking easier courses along with difficult courses. Other students dropped classes to maintain higher GPAs. The percentage of undergraduate withdrawals grew from 5.5 in 1992 to 7.3 in 1996 (Healy, 1997).

Anaya (1999), while conducting a study on using college grades as a measure of student learning, warned about making generalizations based on research using GPAs. Because the GPA is a nonstandardized measure, generalizations of research results are limited unless it is assumed "...that a GPA of 3.8 at one college or in one subenvironment (major) is equivalent to a 3.8 GPA at another college or in another subenvironment" (p. 500).

A local newspaper article (Seymour, 1999) quoted statistics regarding grades. On November 26, 1999, *The Knoxville News-Sentinel* ran an article featuring Don Scroggins of the Office of Institutional Research and Assessment for the University of Tennessee. The annual enrollment profile of first-time freshmen indicated that the students had better high school grades than in previous years. Forty-two percent of first time freshmen had completed high school with GPAs of at least 3.5. The profile indicated that the high school grade-point average for entering freshmen had risen each year from 1995 to 1999. Scroggins stated "That's really ironic, because their ACT scores are about the same" (Seymour, 1999, p. A1-A5).

Lanning and Perkins (1995) conducted a study on the grading differences between majors in several institutions. Specifically, teacher education majors were compared to majors in arts, science, engineering, and fine and performing arts. The authors hypothesized that the "...college of education grading policies are related to faculty attitudes and possibly, the teacher education training they have received" (p. 166). Teachers are typically expected to help students be successful. Teachers are taught methods such as mastery learning to help students succeed. Teachers are also expected to build self-confidence and self-esteem. Lanning and Perkins (1995) concluded that perhaps the very nature of feeling responsible for students' success could precipitate the beginning of grade inflation.

Numerous studies have identified grade inflation in education, liberal arts, and humanities (Burgess, Kental, Littrell, & Metzcus, 1977; Juola, 1976; Kolevzon, 1981; Starch & Elliott, 1913). Studies to detect grade inflation have also been conducted by accounting educators who feared grade inflation would "...undermine the credibility of accounting education" (Cluskey, Griffin, & Ehlen, 1997, p. 273). Using regression analysis, the authors assessed whether "...GPA of accounting courses had increased over time without a corresponding increase in the quality of the student" (p. 273). The results of the study indicated grade inflation had occurred at the university, but was not present in the majority of accounting courses. All of these studies were conducted on four-year colleges and universities. No studies on grade inflation in community colleges have been located.

Numerous causes of grade inflation have been noted. Kolevzon (1981) conducted a study on faculty perception that indicated grade inflation had been affected by the intensity of workload demands on faculty. Research conducted by Weller (1986) studied deans' perceptions regarding grade inflation. The results indicated that only the deans in the area of arts and science agreed that demands on faculty had affected grade inflation. The survey indicated that faculty members attributed grade inflation to students having alternative options to improve final grades and the potential impact student evaluations had on faculty tenure and

promotion. Meyer (1985) claimed that lenient collegiate grading policies had led to grade inflation.

Methods used to fund higher education have also been identified as a potential cause of grade inflation. In 1996, the South Carolina Commission on Higher Education implemented Act 359. Enrollment-driven funding was replaced with a performance-funding formula. The legislation established 37 performance indicators to be used to determine 100% of the state's funding. According to the Internet site of the South Carolina Commission on Higher Education, the Legislative Audit Counsel reviewed the process and stated "...only a small percentage of funding has been affected by performance scores. In FY 99-00 and FY 00-01, the years in which funding was to be based entirely on performance, the amount affected by performance scores was 3% each year" (Legislative Audit Council, 2001). When Klein (1997) interviewed Gerald Gaither, the director of assessment and research at Texas A&M, he stated that grade inflation could result when schools were "...faced with potential funding disasters" (p. A10).

Many educators fault faculty and administration for grade inflation. Baker (1994) cited "...wilting professional backbone" (p. B3) as the cause of grade inflation. Major schools have published false information to attract students (Stecklow, 1995). New College of the University of South Florida admittedly "...deliberately inflated its SAT scores by lopping off the bottom-scoring 6% of students, thereby lifting the average about 40 points" (p. A1). According to the

College Board Internet site, the score scales for all tests in the SAT program since April 1995 have been based on a recentered scale. For example, an original verbal SAT score of 500 was recentered to 580 while an original Math SAT score of 500 was recentered to 520 (College Board, 2001). Numerous colleges also have been known to manipulate applications, admission criteria, and graduation rates. Finn (1984) proclaimed that "...our colleges will do practically anything to lure warm, tuition-paying bodies into their classroom, including admitting--nay, recruiting--men and women gravely lacking intellectual readiness for higher education" (p. 30).

Changes in grading policies and procedures have been identified as causing grade inflation. Aristides (1976) stated that the "...pass-fail option has had the result of raising grade point averages" (p. 495). Birnbaum (1977) stated that pass-fail options, late withdrawals and allowing students "...to repeat a course and have only the higher grade included in the grade point average calculations...can increase grade point averages without affecting the level of achievement required to earn a stated grade in a specific course" (p. 522).

Savitt (1994) and Gose (February, 1997) contended that the widespread use of student evaluations of faculty as criteria for promotion, salary increases, and tenure was the main cause of grade inflation. Cole (1993) cited faculty laziness and lack of application of standards to discriminate between levels of achievement

had led to grade inflation. Cole (1993) emphasized, "...by rewarding mediocrity we discourage excellence" (p. B3).

Other educators argue that situations have changed over the years that have led to higher levels of learning. Hettinger (1994) argued, "...some portion of the GPA rise since 1969 has happened because we are teaching our students more capably" (p. B3). A political science teacher at Duke stated that higher admission standards meant better students who would earn higher grades (Gose, March 1997).

Research Involving Grades

Studies on grade inflation in nursing appear to be non-existent. However, many aspects of the nursing student have been studied. This review considered nursing research studies conducted on grades and GPAs.

A study was conducted at a state university on 247 baccalaureate-nursing graduates from 1971 to 1975 by Clemence and Brink (1978). The purpose of the study was to determine the relationships among admission criteria, successful program completion, and passing the state licensure exam. The authors noted that the "...major problem with most admissions studies...is that they are usually case studies involving one school" (p. 9). Admission GPA was identified as the "...most significant factor in relation to success/nonsuccess in professional schools as well as in academic programs" (p.9).

Numerous studies have identified GPAs as effective predictors of success on the NCLEX-RN (Campbell & Dickson, 1996; Horns, O'Sullivan, & Goodman, 1991; Sharp, 1984; Yang, Glick, & McClelland, 1987). The majority of published nursing education research has been conducted on baccalaureate nursing education. Because of the similarities between both registered nurse educational programs, the baccalaureate and the associate degree, a review of research findings on baccalaureate nursing education will be presented first, followed by research specific to associate-degree nursing.

Taylor et al. (1966) conducted the first major study on predictors of success in nursing. The most important selection criterion listed by nursing programs was GPA. Taylor et al. noted that previous GPAs were useful in predicting academic success but were not useful in predicting the clinical aspects of nursing education. Furthermore, the authors emphasized the need to consider multiple selection criteria such as motivation, achievement, and background factors. Because the attrition rate, which is often not due to academic problems, is significant in nursing, the authors recommended the method of recruitment should be studied. Taylor et al. indicated that high school grades were the best predictors of success. The authors concluded that each school should evaluate and identify its own predictors of success.

Prior to the NCLEX-RN, students wrote state board licensure tests. In the 1970s, a study by Schwirian (1978) identified the best licensure exam predictor of

success as the NLN achievement test. Grade-point averages and theory grades were listed as the best academic predictors. Melcolm, Venn, and Bausell (1981) conducted a study on predicting success on state board of nursing examinations. The authors concluded that the best state board predictors were the NLN achievement test scores, graduating GPAs, nursing theory grades, admission GPAs, and clinical nursing grades.

Even though numerous studies have been conducted, the results are varied. Higgs (1984) stated "...predicting student success in an educational program remains anything but an exact science....Attrition continues to raise issues regarding its impact on students, institutions and society" (p. 77).

Campbell and Dickson (1996) presented an integrative review and meta-analysis on nursing education research regarding predicting retention, graduation, and NCLEX-RN success of baccalaureate-degree nursing students. The authors reviewed nursing education research conducted over a 10-year period from 1981 to 1990. The sample selection method was clearly identified and limitations were noted. Ninety-four percent of the studies involved studying GPAs as predictors of success. Of the 47 studies reviewed, "The least predictive of the variables studied were college cumulative GPAs, liberal arts GPAs, and examination scores on the SAT and nursing courses" (p. 56). The strongest cognitive predictors of success for baccalaureate nursing students were GPAs in nursing and science courses.

The authors' findings cited small convenience samples as the reason previous nursing education research findings could not be generalized. Campbell and Dickson (1996) concluded that results of previous nursing education research had not resulted in consistent predictors of student success. The authors recommended the "...need for more collaborative research among comparable institutions" (p. 57). The meta-analysis did not reveal any published nursing education research on associate-degree nursing programs.

Since the meta-analysis of nursing education research from 1981 to 1990 by Campbell and Dickson (1996) was completed, research studies have been conducted on commercially designed assessment tests as predictors of NCLEX-RN success. Lauchner, Newman, and Britt (1999) conducted a study on the Health Education System Inc. (HESI) Exit Exam. The HESI is a commercially designed, computerized, comprehensive nursing exam. The sample consisted of over 2,800 students from 62 different programs. The chi-square test of significance was applied to determine the accuracy of predictors. The authors concluded that a monitored HESI Exit Exam was "...determined to be highly predictive of students' success on the licensing exam for all groups tested: associate degree, baccalaureate, diploma and practical nursing students" (p. 120).

None of the studies considered either grade inflation in nursing education or the impact grade inflation would have on using GPAs as criteria for admission, retention, and progression or as predictors of success. Very few nursing education

research studies have been conducted specifically on associate-degree nursing during the same time period as Campbell and Dickson's (1996) meta-analysis (Aldag & Rose, 1983; Engelhardt, 1987; Felts, 1986; Oliver, 1985; Woodham & Taube, 1986; Yess, 1980).

Related Research on Associate-Degree Nursing

Yess (1980) and Oliver (1985) studied factors associated with success in completing an associate-degree nursing program. Yess (1980) studied the effects of 14 variables on the cumulative GPAs of 75 associate-degree nursing graduates from a New England community college. The findings indicated that SAT math scores were the best predictors of success in graduation. Oliver (1985) indicated that high school rank and grades earned in high school biology and English were related to success in nursing programs.

Studies on associate-degree nursing by Aldag and Rose (1983), Felts (1986), Woodham and Taube (1986), and Engelhardt (1987) considered similar variables that predicted success on state boards. Aldag and Rose's (1983) results indicated that ACT scores, except for mathematics, were related to success on state board exams. Woodham and Taube's (1986) similar findings indicated that SAT math scores were not indicative of success on the NCLEX-RN. SAT verbal scores and nursing course grades were significantly and positively related to NCLEX-RN success. Felts (1986) studied the relationships between each of several cognitive variables and NCLEX-RN success in five associate-degree

nursing programs located in a midwestern state. The results indicated ACT social studies scores, admission criteria, and cumulative GPAs were variables that were related to NCLEX-RN success. Engelhardt (1987) found assessment test scores, nursing course GPAs, and cumulative GPAs to be the strongest variables related to NCLEX-RN success.

Associate-degree nursing education research studies conducted during the 1990s (Anderson, 1993; Lengacher & Keller, 1990; Neuman, 1991) produced similar results. Lengacher and Keller's (1990) results indicated that ACT composite scores, second-year nursing course grades, results on the NLN basic II exam, and the NLN psychiatric exams were the best indicators for NCLEX-RN success.

Neuman (1991) conducted a study on the relationships among admission criteria, academic achievement, and NCLEX-RN success. The research was conducted on 332 associate-degree graduates of an LPN-RN mobility program. The variables studied included admission GPAs, nursing course grades, and general education course grades, NLN achievement test scores and cumulative GPAs. The results indicated that the NLN achievement tests were the best indicators of NCLEX-RN success.

Anderson (1993) studied academic variables that may have influenced the students' performance on the NCLEX-RN. The study was conducted on four associate-degree nursing programs located in an undisclosed state. The purposive

sample of 156 was composed of the graduates from four designated schools who wrote the NCLEX-RN in July 1989. Eleven variables were studied, including nursing course GPAs and cumulative science and humanities course GPAs. Anderson noted the limitations of previous nursing educational research due to mixed results and lack of similar data from similar programs. Regression and correlation analysis were used to analyze the data. Small sample size was noted as a limitation in identifying statistically significant relationships. "The statistical analysis showed that the combination of the eleven independent variables was not particularly useful for predicting failure on the NCLEX-RN examination" (p. 74). The researcher recommended further study with a larger sample size and a thorough investigation of admission requirements.

Vance and Davidhizar (1997) stated, "While a large number of comparative studies have been done to try to find an accurate predictor of success, few have proved reliable over time.... No one factor alone can accurately predict individual passing" (p. 190). While each study that has been conducted has provided statistics to support the ability to predict success by considering several variables, nursing educators must use caution when viewing the results inclusively. Neuman (1991) noted, while summarizing research conducted on associate-degree programs, "...the predictive power of each variable is inconsistent because of the design of the studies" (p. 52).

The authors emphasized, "Unfortunately, totally reliable predictors of success in school and on the NCLEX-RN are not available and faculty must use their own evaluation of the program and the student in an attempt to take correct measures" (Vance & Davidhizar, 1997, p. 191). This study focused on grade distributions and GPAs. Findings from this study should contribute to the profession of nursing by providing nursing educators with the first study on the extent to which grade inflation has occurred in nursing education. Each community college may use the results obtained in this study to assess the impact grade distribution changes have on their particular nursing program. Each program needs to evaluate its practice of using minimal GPAs as reliable criteria for admission, retention, progression, graduation, and degree requirement or predictors of success. Most importantly, the results may be used to support high standards needed in nursing education to ensure that graduates are competent, safe practitioners. Community colleges involved in this study were invited to request institution-specific statistical information to use as a foundation to determine whether further study is needed to predict the specific cause of any grade inflation or identify institutional significant changes and decide what interventions, if any, should be considered.

CHAPTER 3

METHODOLOGY

Introduction

Based on the literature, grade inflation had occurred in secondary schools and postsecondary institutions. A common indicator of grade inflation was a concomitant rise in average GPAs. No studies had been located that were conducted regarding grade inflation, grade compression, or the effects of grade inflation on using GPAs as admission criteria and indicators of success in associate-degree nursing programs. Therefore, the focus of this study was to assess whether grade inflation had occurred from 1995 to 2000 in Tennessee Board of Regents associate-degree nursing programs and to evaluate the use of GPAs as criteria for admission, retention, and progression or as predictors of success. This chapter includes a description of the research design, population, data collection procedures, research hypotheses, research methods, and data analysis.

Research Design

A retrospective study was conducted in TBR community college associate-degree nursing programs to compare the grade distribution of the class of 1995 to the class of 2000. Permission was obtained from the East Tennessee State University Institutional Review Board, the Tennessee Board of Regents vice chancellor of Academic Affairs, and the community college president and dean or

director of each TBR nursing program. The name of the institutions and the data on each student remained confidential. If desired, the president of each community college could submit a written request and receive college-specific statistics for his or her institution.

The catalog for each institution was employed to verify the use of an ABCDF letter-grading system based on a 4.0 quality-point scale. The director of each TBR associate-degree nursing program verified NLNAC accreditation, Tennessee state board of nursing approval, report of designated students' NCLEX-RN results, and required admission GPAs for the nursing students in the class of 1995 and in the class of 2000.

The variables listed below were used to measure the extent, if any, of grade inflation in associate-degree nursing programs in the class of 1995 and the class of 2000:

1. mean cumulative nursing admission GPA;
2. mean cumulative graduation GPA;
3. mean grade earned in each clinical nursing course; and
4. percentage of the grade of B and above earned in each clinical nursing course.

The variables used to measure the effectiveness of using mean cumulative GPAs as criteria for nursing admission, retention, and progression or as predictors of success were:

1. successful completion of the nursing program; and
2. first-attempt successful results on the NCLEX-RN.

Population

Eight of the nine TBR community college associate-degree nursing programs agreed to participate in this study. The population of this study included 649 students in the class of 1995 and 607 students in the class of 2000, for a total population of 1,256. Six hundred sixty-one students successfully graduated and 627 were successful on the first-attempt on the NCLEX-RN.

Demographic statistics regarding age, gender, and ethnicity were collected on the population. The composition of each TBR community college spring associate-degree nursing program's students in the class of 1995 and in the class of 2000 was summarized as follows: total students by age for the class of 1995 and the class of 2000 are reported in Table 1 and Table 2, respectively; total students by gender are reported in Table 3; ethnic composition for the class of 1995 and the class of 2000 are reported in Table 4 and Table 5, respectively.

Students who had been previously enrolled in any clinical nursing course prior to this admission into nursing were not included in this study. In addition, LPN to RN students who entered associate-degree nursing programs through career mobility articulation were not included.

Table 1

Analysis of Age for the Class of 1995

Group	<u>25 and Under</u>		<u>26-30</u>		<u>31-40</u>		<u>41-50</u>		<u>51-60</u>		<u>Over 60</u>	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
College A	23	37.1	9	14.5	20	32.3	8	12.9	2	3.2	0	.0
College B	23	40.4	15	26.3	14	24.6	5	8.8	0	.0	0	.0
College C	17	26.6	20	31.3	23	35.9	4	6.3	0	.0	0	.0
College D	27	44.3	5	8.2	25	41.0	3	4.9	1	1.6	0	.0
College E	43	38.7	17	15.3	39	35.1	12	10.8	0	.0	0	.0
College F	27	30.7	17	19.3	34	38.6	10	11.4	0	.0	0	.0
College G	45	39.8	22	19.5	31	27.4	14	12.4	1	.9	0	.0
College H	25	26.9	23	24.7	32	34.4	13	14.0	0	.0	0	.0
Totals	230	35.4	128	19.7	218	33.6	69	10.6	4	.7	0	.0

Table 2

Analysis of Age for the Class of 2000

Group	<u>25 and Under</u>		<u>26-30</u>		<u>31-40</u>		<u>41-50</u>		<u>51-60</u>		<u>Over 60</u>	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
College A	26	52.0	8	16.0	11	22.0	5	10.0	0	.0	0	.0
College B	28	50.9	11	20.0	10	18.2	6	10.9	0	.0	0	.0
College C	45	57.0	16	20.2	18	22.8	0	.0	0	.0	0	.0
College D	26	66.7	6	15.4	5	12.8	0	.0	2	5.1	0	.0
College E	38	37.3	29	28.4	27	26.5	8	7.8	0	.0	0	.0
College F	33	40.7	18	22.2	16	19.8	14	17.3	0	.0	0	.0
College G	61	52.1	27	23.1	20	17.1	8	6.8	0	.0	1	.9
College H	35	41.7	26	31.0	12	14.3	10	11.9	1	1.2	0	.0
Totals	292	48.1	141	23.2	119	19.6	51	8.4	3	.5	1	.2

Table 3

Analysis of Gender

Group	<u>Class of 1995</u>				<u>Class of 2000</u>			
	<u>Male</u>		<u>Female</u>		<u>Male</u>		<u>Female</u>	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
College A	9	14.5	53	85.5	4	8.0	46	92.0
College B	6	10.5	51	89.5	2	3.6	53	96.4
College C	7	10.9	57	89.1	13	16.5	66	83.5
College D	5	8.2	56	91.8	3	7.7	36	92.3
College E	13	11.7	98	88.3	11	10.8	91	89.2
College F	14	15.9	74	84.1	7	8.6	74	91.4
College G	13	11.5	100	88.5	10	8.5	107	91.5
College H	19	20.4	74	79.6	11	13.1	73	86.9
Totals	86	13.3	563	86.7	61	10.0	546	90.0

Table 4

Analysis of the Ethnic Composition for the Class of 1995

Group	<u>White</u>		<u>Black</u>		<u>Hispanic</u>		<u>Native American</u>		<u>Asian or Island Pacific</u>		<u>Other</u>	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
College A	61	98.4	1	1.6	0	.0	0	.0	0	.0	0	.0
College B	52	91.2	5	8.8	0	.0	0	.0	0	.0	0	.0
College C	63	98.4	0	0	1	1.6	0	.0	0	.0	0	.0
College D	58	95.1	2	3.3	0	.0	1	1.6	0	.0	0	.0
College E	110	99.1	0	0	0	.0	0	.0	0	.0	1	.9
College F	85	96.6	2	2.3	0	.0	0	.0	0	.0	1	1.1
College G	110	98.2	2	1.8	0	.0	0	.0	0	.0	0	.0
College H	83	89.2	10	10.8	0	.0	0	.0	0	.0	0	.0
Totals	622	95.9	22	3.4	1	.2	1	.2	0	.0	2	.3

Table 5

Analysis of the Ethnic Composition for the Class of 2000

Group	<u>White</u>		<u>Black</u>		<u>Hispanic</u>		<u>Native American</u>		<u>Asian or Island Pacific</u>		<u>Other</u>	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
College A	43	86.0	5	10.0	1	2.0	0	.0	0	.0	1	2.0
College B	51	92.7	4	7.3	0	.0	0	.0	0	.0	0	.0
College C	76	96.2	0	.0	2	2.5	0	.0	1	1.3	0	.0
College D	35	89.7	4	10.3	0	.0	0	.0	0	.0	0	.0
College E	100	98.0	0	.0	0	.0	0	.0	1	1.0	1	1.0
College F	73	90.1	5	6.2	0	.0	1	1.2	1	1.2	1	1.2
College G	110	94.0	5	4.2	0	.0	1	.9	1	.9	0	.0
College H	77	91.7	6	7.1	0	0	1	1.2	0	0	0	0
Totals	565	93.1	29	4.7	3	.5	3	.5	4	.7	3	.5

Data Collection

The student data were obtained from existing educational data and records located at each TBR community college. All colleges used the ABCDF letter grading system based on a 4.0 quality-point scale. Each associate-degree nursing program studied included two years of clinical nursing courses. Prior to being admitted into the nursing program, students must have met institution-specific nursing admission requirements. Each TBR nursing program had defined written admission criteria. All TBR associate-degree nursing programs included in the study had a minimum required mean college GPA as part of the admission criteria. Information about the students admitted into the spring graduating classes of 1995 and 2000 was collected. The class of 1995 and the class of 2000 were defined in chapter 1.

Student academic data were retrieved from the student information system (SIS) and student records and files located in the department of nursing in each TBR community college associate-degree nursing program. The following information was collected on associate-degree nursing students admitted into the spring graduating classes of 1995 and 2000: age, gender, ethnicity, nursing admission and graduation GPA, grades earned in each clinical nursing course, and results on the NCLEX-RN.

Although all TBR community colleges had the SIS, there were numerous reasons why one computer program could not be written to accomplish the gathering of this data. The major obstacle was that each college did not have common nursing course rubrics,

course numbering, or section code indexing. Therefore, an institution-specific computer program would have been needed for each college. In addition, each college varied on the methodology of recording and computing transfer courses, grades, and GPAs. The researcher retrieved each student's information to ascertain the data were gathered consistently ensuring that only first-time admitted nursing students were included in the study and that the mean cumulative nursing admission GPA was calculated consistently. The last variable, results on the NCLEX-RN, included in the study were only available from a hard-copy report located in each nursing department. The student information gathered from SIS was matched and joined with the NCLEX-RN results and loaded into an SPSS file.

The class of 1995 and the class of 2000 were identified using a two-step process. The class list for the first clinical nursing course in the fall semester of 1993 and 1998 obtained from SIS screen 107 were used to identify students who were officially enrolled. The class list was then evaluated using SIS screen 136 and screen 143 for any students who had previously been enrolled in a clinical nursing course. Any student who had previously been enrolled in a clinical nursing course was excluded from the study. Withdrawals occurring after the official enrollment date and nursing academic failures, defined in chapter one, were included in the study.

The demographic information was gathered from SIS screen 107. Admission nursing GPA was the cumulative GPA identified as Cum U on SIS screen 136 for the

semester prior to enrollment in the first clinical nursing course. Transfer courses entered into the SIS screen 136 prior to enrollment in the first clinical nursing course were included in the calculation.

The graduation GPA was the cumulative GPA listed with the date and degree earned on SIS screen 136. Grades earned for each clinical nursing course were also retrieved from SIS screen 136.

Information regarding the success rate of passing the NCLEX-RN on first-time writing was collected from the institution-specific Tennessee RN Candidates Education Program Report sent from the National Council of State Boards of Nursing to each nursing program. These hardcopy reports were obtained from each associate-degree nursing program dean or director.

Because this study compared graduates five years apart, every effort was made to capture any significant policy or curriculum change that occurred between the designated years of this study. Two of the associate-degree nursing programs had curriculum changes that occurred between the designated years of this study. One college had a change in the required mean nursing admission GPA. These changes were acknowledged in chapter 4 and included in the analyses in chapter 5.

The identity of each institution remained confidential. The findings were presented in a manner that did not reflect unfavorably on any specific institution. The SPSS files will remain with the researcher in a locked file. Upon receiving a written

request, the researcher will release specific institutional statistics to the college president and nursing dean or director.

Research Hypotheses

The following hypotheses written in null form directed the study:

Hypothesis 1: There is no difference in the cumulative mean nursing admission GPA between the TBR community college spring associate-degree nursing students in the class of 1995 and in the class of 2000.

Hypothesis 2: There is no difference in the cumulative mean graduating GPA between the TBR community college spring associate-degree nursing graduates in the class of 1995 and in the class of 2000.

Hypothesis 3: There is no difference in the mean nursing grades earned each semester in clinical nursing courses between the TBR community college spring semester associate-degree nursing students in the class of 1995 and in the class of 2000.

Hypothesis 4: There is no difference in the percentages of grade B and higher and the grade C and below earned each semester in clinical nursing courses between the TBR community college spring semester associate-degree nursing students in the class of 1995 and in the class of 2000.

Hypothesis 5: There is no relationship between cumulative mean nursing admission GPA and successful program completion of TBR spring associate-degree nursing students in the class of 1995 and in the class of 2000.

Hypothesis 6: There is no relationship between the cumulative mean nursing admission GPA and the success on the NCLEX-RN for TBR spring associate-degree nursing graduates in the class of 1995 and in the class of 2000.

Research Methods

The first step in the study was to compute the mean cumulative nursing admission GPA for each selected community college's nursing students admitted in the class of 1995 and in the class of 2000. The results for the class of 1995 and the class of 2000 were then compared to test for Hypothesis 1.

The second step was to compute the differences in the mean cumulative graduating GPA for each selected community college's nursing graduates in the class of 1995 and the class of 2000. The results for the class of 1995 and the class of 2000 were then compared to test for Hypothesis 2.

The third step was to compute the differences in the mean grades earned each semester in clinical nursing courses for each selected community college's nursing student in the class of 1995 and in the class of 2000. The results for the class of 1995 and the class of 2000 were then compared to test for Hypothesis 3.

The fourth step was to compute the differences in the percentages of the grade of B and above and the grade of C and below earned each semester in clinical nursing courses for each selected community college's nursing students in the class of 1995 and in the class of 2000. The results for the class of 1995 and the class of 2000 were then compared to test for Hypothesis 4.

The fifth step was to compute the differences in the mean cumulative nursing admission GPA and successful completion of the nursing program for each selected community college's nursing graduates in the class of 1995 and the class of 2000. The results for successful and unsuccessful program completers for the class of 1995 and the class of 2000 were then compared to test for Hypothesis 5.

The final step was to compute the differences in the mean cumulative nursing admission GPA and success on the NCLEX-RN for each selected community college's nursing graduates in the class of 1995 and the class of 2000. The results for successful and unsuccessful results on the NLCEX-RN for the class of 1995 and the class of 2000 were then compared to test for Hypothesis 6.

Data Analysis

Two statistical analysis procedures were executed using the SPSS, version 10 to analyze the hypotheses. A t-test for two independent means was conducted to analyze Hypotheses 1, 2, and 3. All findings reported were based on a .05 level of significance. The chi-square was conducted to analyze Hypotheses 4, 5, and 6.

Because institution-specific policies varied regarding admission criteria, the decision was made to only compare within each institution and not collectively among all institutions. The statistical procedures and data analysis are described in chapter 4.

CHAPTER 4

ANALYSIS OF DATA

This study investigated the grade distributions and GPAs within TBR community college associate-degree nursing programs. An indication of grade inflation is a rise in the cumulative mean graduation GPA from one time to another and an increase in the percentage of the grades A and B earned. Associate-degree nursing program admission criteria and curriculum vary among colleges. Therefore, each college was analyzed individually to determine if there was a significant difference in mean nursing admission GPAs between the class of 1995 and the class of 2000. The following hypotheses, stated in null form, were analyzed.

Analysis of Nursing Admission Grade-Point Averages

Null Hypothesis 1: There is no difference in the cumulative mean nursing admission GPA between the TBR community college spring associate-degree nursing students in the class of 1995 and in the class of 2000.

This analysis was designed to show whether or not grade inflation had occurred in courses taken prior to entering nursing between the class of 1995 and the class of 2000. A t-test for two independent groups was conducted on the cumulative mean nursing admission GPA for the spring associate-degree nursing students in the class of 1995 and the class of 2000. The results of this analysis are reported in Table 6. As shown in Table 6, the students in College A class of 1995 ($\underline{M} = 3.00$) had a cumulative mean

admission GPA that was not significantly higher ($p = .310$) than the students in the class of 2000 ($M = 2.93$). The null hypothesis was retained.

Table 6

Comparison of Cumulative Nursing Admission Grade-Point Averages for Spring Associate-Degree Nursing Students

Group	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
College A	1995	62	3.00	.335	1.020	.310
	2000	50	2.93	.358		
College B	1995	52	3.11	.376	.206	.837
	2000	49	3.09	.392		
College C	1995	64	3.12	.489	1.382	.169
	2000	70	3.00	.552		
College D	1995	58	3.14	.525	.472	.638
	2000	36	3.19	.468		
College E	1995	106	3.50	.396	.432	.667
	2000	89	3.52	.412		
College F	1995	78	3.49	.499	4.022	.000*
	2000	70	3.16	.494		
College G	1995	113	2.92	.468	2.212	.028*
	2000	117	3.04	.411		
College H	1995	92	3.40	.402	4.122	.000*
	2000	84	3.09	.572		

* $p < .05$; statistically significant difference

College B class of 1995 students ($\underline{M} = 3.11$) had a cumulative mean admission GPA that was not significantly higher ($p = .837$) than the students in the class of 2000 ($\underline{M} = 3.09$). The null hypothesis was retained.

College C class of 1995 students ($\underline{M} = 3.12$) had a cumulative mean admission GPA that was not significantly higher ($p = .169$) than the students in the class of 2000 ($\underline{M} = 3.00$). The null hypothesis was retained.

College D class of 1995 students ($\underline{M} = 3.14$) had a cumulative mean admission GPA that was not significantly lower ($p = .638$) than the students in the class of 2000 ($\underline{M} = 3.19$). The null hypothesis was retained.

College E class of 1995 students ($\underline{M} = 3.50$) had a cumulative mean admission GPA that was not significantly lower ($p = .667$) than the students in the class of 2000 ($\underline{M} = 3.52$). The null hypothesis was retained.

College F class of 1995 students ($\underline{M} = 3.49$) had a significantly higher cumulative mean admission GPA ($p = .000$) than the students in the class of 2000 ($\underline{M} = 3.16$). The null hypothesis was rejected.

College G class of 1995 students ($\underline{M} = 2.92$) had a significantly lower cumulative mean admission GPA ($p = .028$) than the students in the class of 2000 ($\underline{M} = 3.04$). The null hypothesis was rejected. Caution must be used when interpreting the results for College G because the minimum cumulative mean admission requirement was increased from 2.0 for the class of 1995 to 2.5 for the class of 2000.

College H class of 1995 students ($\underline{M} = 3.40$) had a significantly higher ($p = .000$) cumulative mean admission GPA than the students in the class of 2000 ($\underline{M} = 3.09$). The null hypothesis was rejected.

The majority of the colleges' mean nursing admission GPAs had not changed significantly from the class of 1995 to the class of 2000. The findings did not predominantly indicate grade inflation had occurred in courses taken in other disciplines prior to admission into nursing.

Analysis of Graduating Grade-Point Averages

Null Hypothesis 2: There is no difference in the cumulative mean graduating GPA between the TBR community college spring associate-degree nursing graduates in the class of 1995 and in the class of 2000.

This analysis was designed to show whether or not grade inflation had occurred in nursing. A t-test for two independent groups was conducted on the cumulative mean nursing graduating GPA for the spring associate-degree nursing graduates in the class of 1995 and the class of 2000. The results of this analysis are reported in Table 7.

College A class of 1995 graduates ($\underline{M} = 2.90$) had a cumulative mean nursing graduating GPA that was not significantly lower ($p = .714$) than the graduates in the class of 2000 ($\underline{M} = 2.93$). The null hypothesis was retained.

Table 7

Comparison of Cumulative Nursing Graduation Grade-Point Averages for Spring
Associate-Degree Nursing Graduates

Group	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
College A	1995	40	2.90	.306	.369	.714
	2000	22	2.93	.339		
College B	1995	32	2.81	.250	.130	.897
	2000	29	2.82	.280		
College C	1995	53	2.94	.345	.454	.652
	2000	16	2.90	.385		
College D	1995	26	2.90	.307	.861	.393
	2000	26	2.81	.454		
College E	1995	61	3.28	.263	.944	.347
	2000	47	3.33	.243		
College F	1995	60	3.10	.437	1.692	.094
	2000	38	2.95	.407		
College G	1995	71	2.73	.364	.015	.988
	2000	52	2.72	.303		
College H	1995	78	3.27	.342	.971	.333
	2000	44	3.21	.389		

* $p < .05$; statistically significant difference

College B class of 1995 graduates ($\underline{M} = 2.81$) had a cumulative mean nursing graduating GPA that was not significantly lower ($p = .897$) than the graduates in the class of 2000 ($\underline{M} = 2.82$). The null hypothesis was retained.

College C class of 1995 graduates ($\underline{M} = 2.94$) had a cumulative mean nursing graduating GPA that was not significantly higher ($p = .652$) than the graduates in the class of 2000 ($\underline{M} = 2.90$). The null hypothesis was retained.

College D class of 1995 graduates ($\underline{M} = 2.90$) had a cumulative mean nursing graduating GPA that was not significantly higher ($p = .393$) than the graduates in the class of 2000 ($\underline{M} = 2.81$). The null hypothesis was retained.

College E class of 1995 graduates ($\underline{M} = 3.28$) had a cumulative mean nursing graduating GPA that was not significantly lower ($p = .347$) than the graduates in the class of 2000 ($\underline{M} = 3.33$). The null hypothesis was retained.

College F class of 1995 graduates ($\underline{M} = 3.10$) had a cumulative mean nursing graduating GPA that was not significantly higher ($p = .094$) than the graduates in the class of 2000 ($\underline{M} = 2.95$). The null hypothesis was retained.

College G class of 1995 graduates ($\underline{M} = 2.73$) had a cumulative mean nursing graduating GPA that was not significantly higher ($p = .988$) than the graduates in the class of 2000 ($\underline{M} = 2.72$). The null hypothesis was retained.

College H class of 1995 graduates ($\underline{M} = 3.27$) had a cumulative mean nursing graduating GPA that was not significantly higher ($p = .333$) than the graduates in the class of 2000 ($\underline{M} = 3.21$). The null hypothesis was retained.

There were no statistically significant differences in the cumulative nursing graduating GPAs between the class of 1995 and the class of 2000. These findings did not indicate grade inflation had occurred in clinical nursing courses.

Analysis of Grades Earned in Clinical Nursing Courses

Null Hypothesis 3: There is no difference in the mean grades earned each semester in clinical nursing courses between the TBR community college spring semester associate-degree nursing students in the class of 1995 and in the class of 2000.

This analysis was designed to show whether or not grade inflation had occurred in nursing. A t-test for two independent groups was conducted on the mean nursing grades earned each semester in nursing clinical courses for the spring associate-degree nursing students in the class of 1995 and the class of 2000. The results of this analysis for College A are reported in Table 8.

Table 8

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for
College A Spring Associate-Degree Nursing Students

Semester	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
One	1995	62	2.62	.773	1.819	.072
	2000	46	2.34	.822		
Two	1995	53	2.35	.709	1.185	.239
	2000	31	2.16	.778		
Three	1995	45	2.31	.763	.047	.963
	2000	25	2.32	.748		
Four	1995	40	2.45	.552	2.593	.012*
	2000	22	2.81	.501		

* $p < .05$; statistically significant difference

College A class of 1995 students in the first semester of clinical nursing ($\underline{M} = 2.62$) had earned a mean grade that was not statistically higher ($p = .072$) than the students in the class of 2000 ($\underline{M} = 2.34$). Class of 1995 students in the second semester of clinical nursing ($\underline{M} = 2.35$) had earned a mean grade that was not statistically higher ($p = .239$) than the students in the class of 2000 ($\underline{M} = 2.16$). Class of 1995 students in the third semester of clinical nursing ($\underline{M} = 2.31$) had earned a mean grade that was not statistically lower ($p = .963$) than the students in the class of 2000 ($\underline{M} = 2.32$). Class of

1995 students in the fourth semester of clinical nursing ($\underline{M} = 2.45$) had earned a mean grade that was statistically lower ($p = .012$) than the students in the class of 2000 ($\underline{M} = 2.81$). The null hypothesis was retained for the first, second, and third semesters. The null hypothesis was rejected for the fourth semester. The mean nursing grades earned in clinical nursing courses was not significantly different in three of the four semesters but was significantly higher one semester between the class of 1995 and the class of 2000. The majority of the results do not indicate grade inflation had occurred.

As shown in Table 9, College B class of 1995 students in the first semester of clinical nursing ($\underline{M} = 2.25$) had earned a mean grade that was statistically lower ($p = .003$) than the students in the class of 2000 ($\underline{M} = 2.63$). Class of 1995 students in the second semester of clinical nursing ($\underline{M} = 1.95$) had earned a mean grade that was statistically lower ($p = .036$) than the students in the class of 2000 ($\underline{M} = 2.21$). Class of 1995 students in the third semester of clinical nursing ($\underline{M} = 2.22$) had earned a mean grade that was not statistically higher ($p = .284$) than the students in the class of 2000 ($\underline{M} = 2.09$). Class of 1995 students in the fourth semester of clinical nursing ($\underline{M} = 2.03$) had earned a mean grade that was statistically lower ($p = .000$) than the students in the class of 2000 ($\underline{M} = 2.51$). The null hypothesis was retained for the third semester. The null hypothesis was rejected for the first, second, and fourth semesters. The mean nursing grades earned in clinical nursing courses was significantly higher in

three of the four semesters between the class of 1995 and the class of 2000. The majority of the results indicate grade inflation had occurred.

As shown in Table 10, College C class of 1995 students in the first semester of clinical nursing ($\underline{M} = 2.37$) had earned a mean grade that was statistically higher ($p = .000$) than the students in the class of 2000 ($\underline{M} = 1.83$). Class of 1995 students

Table 9

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for College B Spring Associate-Degree Nursing Students

Semester	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
One	1995	54	2.25	.620	3.095	.003*
	2000	44	2.63	.574		
Two	1995	45	1.95	.520	2.136	.036*
	2000	37	2.21	.583		
Three	1995	35	2.22	.490	1.081	.284
	2000	32	2.09	.530		
Four	1995	32	2.03	.176	5.081	.000*
	2000	29	2.51	.508		

* $p < .05$; statistically significant difference

in the second semester of clinical nursing ($\underline{M} = 2.80$) had earned a mean grade that was statistically higher ($p = .002$) than the students in the class of 2000 ($\underline{M} = 2.45$). Class of 1995 students in the third semester of clinical nursing ($\underline{M} = 2.26$) had earned a mean

grade that was statistically higher ($p = .000$) than the students in the class of 2000 ($\underline{M} = 1.58$). Class of 1995 students in the fourth semester of clinical nursing ($\underline{M} = 2.67$) had earned a mean grade that was not statistically higher ($p = .224$) than the students in the class of 2000 ($\underline{M} = 2.50$). The null hypothesis was retained for the fourth semester. The null hypothesis was rejected for the first, second, and third semesters. The mean nursing grades earned in clinical nursing courses was significantly lower in three of the four semesters between the class of 1995 and the class of 2000. The majority of the results do not indicate grade inflation had occurred.

Table 10

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for College C Spring Associate-Degree Nursing Students

Semester	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
One	1995	61	2.37	.610	4.027	.000*
	2000	56	1.83	.826		
Two	1995	57	2.80	.440	3.219	.002*
	2000	37	2.45	.605		
Three	1995	56	2.26	.725	4.002	.000*
	2000	29	1.58	.780		
Four	1995	53	2.67	.510	1.228	.224
	2000	16	2.50	.516		

* $p < .05$; statistically significant difference

As shown in Table 11, College D class of 1995 students in the first semester of clinical nursing (\underline{M} = 2.07) had earned a mean grade that was not statistically lower ($p = .812$) than the students in the class of 2000 (\underline{M} = 2.11). Class of 1995 students in the second semester of clinical nursing (\underline{M} = 1.82) had earned a mean grade that was statistically lower ($p = .009$) than the students in the class of 2000 (\underline{M} = 2.23).

Table 11

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for College D Spring Associate-Degree Nursing Students

Semester	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
One	1995	55	2.07	.835	.238	.812
	2000	35	2.11	.758		
Two	1995	39	1.82	.720	2.672	.009*
	2000	30	2.23	.504		
Three	1995	29	2.10	.557	2.230	.030*
	2000	29	2.41	.501		
Four	1995	26	2.38	.496	.332	.742
	2000	27	2.33	.620		

* $p < .05$; statistically significant difference

Class of 1995 students in the third semester of clinical nursing (\underline{M} = 2.10) had earned a mean grade that was statistically lower ($p = .030$) than the students in the class of 2000 (\underline{M} = 2.41). Class of 1995 students in the fourth semester of clinical nursing (\underline{M} = 2.38)

had earned a mean grade that was not statistically higher ($p = .742$) than the students in the class of 2000 ($\underline{M} = 2.33$). The null hypothesis was retained for the first and fourth semesters. The null hypothesis was rejected for the second and third semesters. The mean nursing grades earned in clinical nursing courses was not significantly different in two of the four semesters and was significantly higher two semesters between the class of 1995 and the class of 2000. The results do not indicate grade inflation had or had not occurred.

As shown in Table 12, College E class of 1995 students in the first semester of clinical nursing ($\underline{M} = 2.75$) had earned a mean grade that was not statistically lower ($p = .834$) than the students in the class of 2000 ($\underline{M} = 2.78$). Class of 1995 students in the second semester of clinical nursing ($\underline{M} = 2.96$) had earned a mean grade that was statistically higher ($p = .000$) than the students in the class of 2000 ($\underline{M} = 2.27$). Class of 1995 students in the third semester of clinical nursing ($\underline{M} = 2.13$) had earned a mean grade that was statistically lower ($p = .000$) than the students in the class of 2000 ($\underline{M} = 2.66$). Class of 1995 students in the fourth semester of clinical nursing ($\underline{M} = 3.19$) had earned a mean grade that was statistically lower ($p = .000$) than the students in the class of 2000 ($\underline{M} = 3.47$). The null hypothesis was retained for the first semester. The null hypothesis was rejected for the second, third and fourth semesters. The mean nursing grades earned in clinical nursing courses was not significantly different in one semester, was significantly lower one semester and was significantly higher in two

semesters between the class of 1995 and the class of 2000. The results do not indicate grade inflation had or had not occurred.

Table 12

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for College E Spring Associate-Degree Nursing Students

Semester	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
One	1995	111	2.75	1.011	.210	.834
	2000	93	2.78	.882		
Two	1995	88	2.96	.595	5.941	.000*
	2000	74	2.27	.872		
Three	1995	79	2.13	.858	3.848	.000*
	2000	48	2.66	.519		
Four	1995	61	3.19	.400	3.785	.000*
	2000	47	3.47	.360		

* $p < .05$; statistically significant difference

As shown in Table 13, College F class of 1995 students in the first semester of clinical nursing ($\underline{M} = 2.51$) had earned a mean grade that was not statistically higher ($p = .248$) than the students in the class of 2000 ($\underline{M} = 2.35$). Class of 1995 students in the second semester of clinical nursing ($\underline{M} = 2.80$) had earned a mean grade that was not statistically higher ($p = .196$) than the students in the class of 2000 ($\underline{M} = 2.63$). Class of 1995 students in the third semester of clinical nursing ($\underline{M} = 2.60$) had earned a mean

grade that was statistically higher ($p = .000$) than the students in the class of 2000 ($\underline{M} = 2.08$). Class of 1995 students in the fourth semester of clinical nursing ($\underline{M} = 2.65$) had earned a mean grade that was not significantly different ($p = .991$) from the students in the class of 2000 ($\underline{M} = 2.65$). The null hypothesis was retained for the first, second, and fourth semesters. The null hypothesis was rejected for the third semester. The mean nursing grades earned in clinical nursing courses was not significantly different in three of the four semesters and was significantly lower one semester between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

Table 13

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for College F Spring Associate-Degree Nursing Students

Semester	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
One	1995	88	2.51	.844	1.160	.248
	2000	71	2.35	.879		
Two	1995	75	2.80	.735	1.301	.196
	2000	52	2.63	.657		
Three	1995	68	2.60	.715	3.731	.000*
	2000	49	2.08	.786		
Four	1995	64	2.65	.739	.011	.991
	2000	38	2.65	.627		

* $p < .05$; statistically significant difference

As shown in Table 14, College G class of 1995 students in the first semester of clinical nursing ($\underline{M} = 2.08$) had earned a mean grade that was statistically higher ($p = .049$) than the students in the class of 2000 ($\underline{M} = 1.86$). Class of 1995 students in the second semester of clinical nursing ($\underline{M} = 1.98$) had earned a mean grade that was not statistically lower ($p = .706$) than the students in the class of 2000 ($\underline{M} = 2.02$). Class of 1995 students in the third semester of clinical nursing ($\underline{M} = 2.36$) had earned a mean grade that was statistically higher ($p = .000$) than the students in the class of 2000 ($\underline{M} = 1.95$).

Table 14

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for College G Spring Associate-Degree Nursing Students

Semester	Year	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>p</u>
One	1995	107	2.08	.790	1.983	.049*
	2000	103	1.86	.817		
Two	1995	82	1.98	.618	.378	.706
	2000	73	2.02	.686		
Three	1995	71	2.36	.513	4.593	.000*
	2000	62	1.95	.525		
Four	1995	71	2.39	.547	.923	.358
	2000	52	2.30	.466		

* $p < .05$; statistically significant difference

Class of 1995 students in the fourth semester of clinical nursing ($\underline{M} = 2.39$) had earned a mean grade that was not statistically higher ($p = .358$) than the students in the class of 2000 ($\underline{M} = 2.30$). The null hypothesis was retained for the second and fourth semesters. The null hypothesis was rejected for the first and third semesters. The mean nursing grades earned in clinical nursing courses was not significantly different two semesters and was significantly lower two semesters between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

As shown in Table 15, College H class of 1995 students in the first semester of clinical nursing ($\underline{M} = 3.13$) had earned a significantly higher mean grade ($p = .022$) than the students in the class of 2000 ($\underline{M} = 2.91$). Class of 1995 students in the second semester of clinical nursing ($\underline{M} = 3.10$) had earned a significantly higher mean grade ($p = .000$) than the students in the class of 2000 ($\underline{M} = 2.61$). Class of 1995 students in the third semester of clinical nursing ($M = 2.89$) had earned a significantly higher mean grade ($p = .000$) than the students in the class of 2000 ($\underline{M} = 2.30$). Class of 1995 students in the fourth semester of clinical nursing ($\underline{M} = 3.01$) had earned a mean grade that was not statistically lower ($p = .262$) than the students in the class of 2000 ($M = 3.15$). The null hypothesis was retained for the fourth semester. The null hypothesis was rejected for the first, second, and third semesters. The mean nursing grades earned in clinical nursing courses was significantly lower three semesters and was not significantly different one

semester between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

The majority of the colleges' mean clinical nursing course grades were not statistically significantly higher in 2000 than they were in 1995. These findings did not indicate grade inflation had occurred in clinical nursing courses.

Table 15

Comparison of Mean Nursing Grades Earned in Clinical Nursing Courses for College H Spring Associate-Degree Nursing Students

Semester	Year	n	M	SD	t	p
One	1995	92	3.13	.559	2.306	.022*
	2000	79	2.91	.682		
Two	1995	90	3.10	.527	4.922	.000*
	2000	71	2.61	.724		
Three	1995	89	2.89	.599	4.432	.000*
	2000	60	2.30	1.046		
Four	1995	78	3.01	.634	1.127	.262
	2000	44	3.15	.775		

*p<.05; statistically significant difference

Analysis of the Percentages of Grade B and Higher and Grade C and Below
Earned in Clinical Nursing Courses

Null Hypothesis 4: There is no difference in the percentages of grade B and higher and the grade C and below earned each semester in clinical nursing courses between the TBR community college spring semester associate-degree nursing students in the class of 1995 and the class of 2000.

This analysis was designed to show whether or not grade inflation had occurred in nursing. The chi square test of independence was applied to the frequencies to determine if there were significant differences in the percentages of grade B and higher and grade C and lower in each clinical nursing course. The results of College A are reported in Table 16. Given a computed χ^2 of 2.606 and $p = .106$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of .773 and $p = .379$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester. Given a computed χ^2 of .033 and $p = .856$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of 6.930 and $p = .008$, a significant difference did exist between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for the first, second, and third semesters. The null hypothesis was rejected for the fourth semester. The percentage of grade B and

higher earned was not significantly different in three of the four semesters between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

Table 16

Analysis of Grades Earned in Clinical Nursing Courses for College A Spring

Associate-Degree Nursing Students

Semester	Grade	Class of 1995		Class of 2000		χ^2	p
		f	%	f	%		
One	“B” or higher	38	61.3	21	45.7	2.606	.106
	“C” or lower	<u>24</u>	<u>38.7</u>	<u>25</u>	<u>54.3</u>		
		62	100.0	46	100.0		
Two	“B” or higher	24	45.3	11	35.5	.773	.379
	“C” or lower	<u>29</u>	<u>54.7</u>	<u>20</u>	<u>64.5</u>		
		53	100.0	31	100.0		
Three	“B” or higher	19	42.2	10	40.0	.033	.856
	“C” or lower	<u>26</u>	<u>57.8</u>	<u>15</u>	<u>60.0</u>		
		45	100.0	25	100.0		
Four	“B” or higher	17	42.5	17	77.3	6.930	.008*
	“C” or lower	<u>23</u>	<u>57.5</u>	<u>5</u>	<u>22.7</u>		
		40	100.0	22	100.0		

*p<.05; statistically significant difference

The results of College B are reported in Table 17. Given a computed χ^2 of 5.579 and $p = .018$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of 4.482 and $p = .034$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester. Given a computed χ^2 of .467 and $p = .495$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of 18.57 and $p = .000$, a significant difference did exist between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for the third semester. The null hypothesis was rejected for the first, second, and fourth semesters. The percentage of grade B and higher earned was significantly higher in three of the four semesters between the class of 1995 and the class of 2000. The results indicate grade inflation had occurred.

The results of College C are reported in Table 18. Given a computed χ^2 of 8.407 and $p = .004$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of 7.863 and $p = .005$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester. Given a computed χ^2 of 6.953 and $p = .008$, a significant difference existed

Table 17

Analysis of Grades Earned in Clinical Nursing Courses for College B SpringAssociate-Degree Nursing Students

Semester	Grade	<u>Class of 1995</u>		<u>Class of 2000</u>		χ^2	p
		<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
One	“B” or higher	19	35.2	26	59.1	5.579	.018*
	“C” or lower	<u>35</u>	<u>64.8</u>	<u>18</u>	<u>40.9</u>		
		54	100.0	44	100.0		
Two	“B” or higher	5	11.1	11	29.7	4.482	.034*
	“C” or lower	<u>40</u>	<u>88.9</u>	<u>26</u>	<u>70.3</u>		
		45	100.0	37	100.0		
Three	“B” or higher	9	25.7	6	18.7	.467	.495
	“C” or lower	<u>26</u>	<u>74.3</u>	<u>26</u>	<u>81.3</u>		
		35	100.0	32	100.0		
Four	“B” or higher	1	3.1	15	51.7	18.570	.000*
	“C” or lower	<u>31</u>	<u>96.9</u>	<u>14</u>	<u>48.3</u>		
		32	100.0	29	100.0		

*p<.05; statistically significant difference

between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of 1.346 and p = .246, no significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for the fourth semester. The null hypothesis was rejected for the first, second, and third

semesters. The percentage of grade B and higher earned was significantly lower in three of the four semesters between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

The results of College D are reported in Table 19. Given a computed χ^2 of .172 and $p = .678$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of 2.126 and $p = .145$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester. Given a computed χ^2 of 2.900 and $p = .089$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of .151 and $p = .697$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for all four semesters. The percentage of grade B and higher earned was not significantly different between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

Table 18

Analysis of Grades Earned in Clinical Nursing Courses for College C SpringAssociate-Degree Nursing Students

Semester	Grade	Class of 1995		Class of 2000		χ^2	p
		f	%	f	%		
One	"B" or higher	26	42.6	10	17.9	8.407	.004*
	"C" or lower	<u>35</u>	<u>57.4</u>	<u>46</u>	<u>82.1</u>		
		61	100.0	56	100.0		
Two	"B" or higher	45	78.9	19	51.4	7.863	.005*
	"C" or lower	<u>12</u>	<u>21.1</u>	<u>18</u>	<u>48.6</u>		
		57	100.0	37	100.0		
Three	"B" or higher	21	37.5	3	10.3	6.953	.008*
	"C" or lower	<u>35</u>	<u>62.5</u>	<u>26</u>	<u>89.7</u>		
		56	100.0	29	100.0		
Four	"B" or higher	35	66.0	8	50.0	1.346	.246
	"C" or lower	<u>18</u>	<u>34.0</u>	<u>8</u>	<u>50.0</u>		
		53	100.0	16	100.0		

*p<.05; statistically significant difference

Table 19

Analysis of Grades Earned in Clinical Nursing Courses for College D Spring
Associate-Degree Nursing Students

Semester	Grade	Class of 1995		Class of 2000		χ^2	p
		f	%	f	%		
One	"B" or higher	18	32.7	10	28.6	.172	.678
	"C" or lower	<u>37</u>	<u>67.3</u>	<u>25</u>	<u>71.4</u>		
		55	100.0	35	100.0		
Two	"B" or higher	5	12.8	8	26.7	2.126	.145
	"C" or lower	<u>34</u>	<u>87.2</u>	<u>22</u>	<u>73.3</u>		
		39	100.0	30	100.0		
Three	"B" or higher	6	20.7	12	41.4	2.900	.089
	"C" or lower	<u>23</u>	<u>79.3</u>	<u>17</u>	<u>58.6</u>		
		29	100.0	29	100.0		
Four	"B" or higher	10	38.5	9	33.3	.151	.697
	"C" or lower	<u>16</u>	<u>61.5</u>	<u>18</u>	<u>66.7</u>		
		26	100.0	27	100.0		

*p<.05; statistically significant difference

The results of College E are reported in Table 20. Caution must be used when interpreting the results for College E because a curriculum change, which resulted in a change in the number of clinical nursing courses per semester, occurred between the class of 1995 and the class of 2000. Given a computed χ^2 of .834 and p = .361, no significant

differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of 31.229 and $p = .000$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester.

Table 20

Analysis of Grades Earned in Clinical Nursing Courses for College E Spring Associate-Degree Nursing Students

Semester	Grade	Class of 1995		Class of 2000		χ^2	p
		f	%	f	%		
One	"B" or higher	81	73.0	73	78.5	.834	.361
	"C" or lower	<u>30</u>	<u>27.0</u>	<u>20</u>	<u>21.5</u>		
		111	100.0	93	100.0		
Two	"B" or higher	73	83.0	77	53.1	31.229	.000*
	"C" or lower	<u>15</u>	<u>17.0</u>	<u>68</u>	<u>46.9</u>		
		88	100.0	145	100.0		
Three	"B" or higher	30	38.0	33	68.8	11.312	.001*
	"C" or lower	<u>49</u>	<u>62.0</u>	<u>15</u>	<u>31.2</u>		
		79	100.0	48	100.0		
Four	"B" or higher	61	100.0	89	94.6	1.310	.252
	"C" or lower	<u>0</u>	<u>.0</u>	<u>5</u>	<u>5.4</u>		
		61	100.0	94	100.0		

* $p < .05$; statistically significant difference

Given a computed χ^2 of 11.312 and $p = .001$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of 1.310 and $p = .252$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for the first and fourth semesters. The null hypothesis was rejected for the second and third semesters. The percentage of grade B and higher earned was not significantly different in two of the four semesters, was significantly higher in one semester, and was significantly lower in one semester between the class of 1995 and the class of 2000. The majority of the results do not indicate grade inflation had occurred.

The results of College F are reported in Table 21. Given a computed χ^2 of 1.411 and $p = .235$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of 2.617 and $p = .106$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester. Given a computed χ^2 of 6.911 and $p = .009$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of .026 and $p = .871$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for

the first, second, and fourth semesters. The null hypothesis was rejected for the third semester. The percentage of grade B and higher earned was not significantly different in three of the four semesters and was significantly lower one semester between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

Table 21

Analysis of Grades Earned in Clinical Nursing Courses for College F Spring
Associate-Degree Nursing Students

Semester	Grade	Class of 1995		Class of 2000		χ^2	p
		f	%	f	%		
One	“B” or higher	48	54.5	32	45.1	1.411	.235
	“C” or lower	<u>40</u>	<u>45.5</u>	<u>39</u>	<u>54.9</u>		
		88	100.0	71	100.0		
Two	“B” or higher	51	68.0	28	53.8	2.617	.106
	“C” or lower	<u>24</u>	<u>32.0</u>	<u>24</u>	<u>46.2</u>		
		75	100.0	52	100.0		
Three	“B” or higher	36	52.9	14	28.6	6.911	.009*
	“C” or lower	<u>32</u>	<u>47.1</u>	<u>35</u>	<u>71.4</u>		
		68	100.0	49	100.0		
Four	“B” or higher	36	56.3	22	57.9	.026	.871
	“C” or lower	<u>28</u>	<u>43.7</u>	<u>16</u>	<u>42.1</u>		
		64	100.0	38	100.0		

*p<.05; statistically significant difference

The results of College G are reported in Table 22. Given a computed χ^2 of 1.304 and $p = .253$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of .939 and $p = .333$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester. Given a computed χ^2 of 10.365 and $p = .001$, a significant difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of .457 and $p = .499$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for the first, second, and fourth semesters. The null hypothesis was rejected for the third semester. The percentage of grade B and higher earned was not significantly different in three of the four semesters and was significantly lower one semester between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

Table 22

Analysis of Grades Earned in Clinical Nursing Courses for College G Spring
Associate-Degree Nursing Students

Semester	Grade	Class of 1995		Class of 2000		χ^2	p
		f	%	f	%		
One	“B” or higher	29	27.1	21	20.4	1.304	.253
	“C” or lower	<u>78</u>	<u>72.9</u>	<u>82</u>	<u>79.6</u>		
		107	100.0	103	100.0		
Two	“B” or higher	12	14.6	15	20.5	.939	.333
	“C” or lower	<u>70</u>	<u>85.4</u>	<u>58</u>	<u>79.5</u>		
		82	100.0	73	100.0		
Three	“B” or higher	25	35.2	7	11.3	10.365	.001*
	“C” or lower	<u>46</u>	<u>64.8</u>	<u>55</u>	<u>88.7</u>		
		71	100.0	62	100.0		
Four	“B” or higher	26	36.6	16	30.8	.457	.499
	“C” or lower	<u>45</u>	<u>63.4</u>	<u>36</u>	<u>69.2</u>		
		71	100.0	52	100.0		

*p<.05; statistically significant difference

The results of College H are reported in Table 23. Caution must be used when interpreting the results for College H, because a curriculum change, which resulted in a change in the number of clinical nursing courses per semester, occurred between the class of 1995 and the class of 2000. Given a computed χ^2 of 4.871 and p = .027, a significant

difference existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the first semester. Given a computed χ^2 of 3.212 and $p = .073$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the second semester. Given a computed χ^2 of .214 and $p = .643$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the third semester. Given a computed χ^2 of 2.014 and $p = .156$, no significant differences existed between the class of 1995 and the class of 2000 in the percentages of grade B and higher earned in the fourth semester. The null hypothesis was retained for the second, third, and fourth semesters. The null hypothesis was rejected for the first semester. The percentage of grade B and higher earned was not significantly different in three of the four semesters and was significantly lower one semester between the class of 1995 and the class of 2000. The results do not indicate grade inflation had occurred.

The majority of the colleges' clinical nursing courses did not demonstrate a statistically significant increase in the percentage of grades of B and higher awarded between the class of 1995 and the class of 2000. These findings did not indicate grade inflation had occurred in clinical nursing courses.

Table 23

Analysis of Grades Earned in Clinical Nursing Courses for College H SpringAssociate-Degree Nursing Students

Semester	Grade	Class of 1995		Class of 2000		χ^2	p
		f	%	f	%		
One	"B" or higher	88	95.7	68	86.1	4.871	.027*
	"C" or lower	<u>4</u>	<u>4.3</u>	<u>11</u>	<u>13.9</u>		
		92	100.0	79	100.0		
Two	"B" or higher	156	86.7	48	67.6	3.212	.073
	"C" or lower	<u>24</u>	<u>13.3</u>	<u>23</u>	<u>32.4</u>		
		180	100.0	71	100.0		
Three	"B" or higher	136	76.4	36	60.0	.214	.643
	"C" or lower	<u>42</u>	<u>23.6</u>	<u>24</u>	<u>40.0</u>		
		178	100.0	60	100.0		
Four	"B" or higher	68	87.2	34	77.3	2.014	.156
	"C" or lower	<u>10</u>	<u>12.8</u>	<u>10</u>	<u>22.7</u>		
		78	100.0	44	100.0		

*p<.05; statistically significant difference

Analysis of Nursing Admission Grade-Point Average
and Program Completers

Null Hypothesis 5: There is no relationship between cumulative mean nursing admission GPA and successful program completion of TBR spring associate-degree nursing students in the class of 1995 and in the class of 2000.

This analysis was designed to determine the association between cumulative mean nursing admission GPA and successful completion of the program. The chi square test of independence was computed to determine if there were significant associations between nursing admission GPAs and successful completion of the program in the class of 1995 and in the class of 2000. The results of College A are reported in Table 24. Given a computed χ^2 of 2.572 and $p = .462$ for the College A class of 1995 the association was not significant and therefore, the null hypothesis was retained. Given a computed χ^2 of 6.323 and $p = .097$ for the class of 2000, the null hypothesis was retained. No significant relationships existed between nursing admission GPAs and the successful completion of the nursing program. The Cramer's V statistics demonstrated the identical p value of .462 for the class of 1995 and .097 for the class of 2000.

The results for College B are reported in Table 25. Given a computed χ^2 of 7.80 and $p = .050$ for College B class of 1995, the null hypothesis was retained. Given a computed χ^2 of 9.094 and $p = .028$ for the class of 2000, the null hypothesis was rejected. There was a significant relationship between nursing admission GPAs and the successful completion of the nursing program for the class of 2000. The Cramer's V statistic

demonstrated the identical p values of .050 for the class of 1995 and .028 for the class of 2000.

The results for College C are reported in Table 26. Given a computed χ^2 of 8.952 and $p = .030$ for College C class of 1995, the null hypothesis was rejected. Given a computed χ^2 of 7.537 and $p = .057$ for the class of 2000, the null hypothesis was retained. There was a significant relationship between nursing admission GPAs and the successful completion of the nursing program for the class of 1995. The Cramer's V statistics demonstrated the identical p values of .030 for the class of 1995 and .057 for the class of 2000.

Table 24

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College A Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	2	5.0	2	9.1	2.572	.462
GPA 2.50 to 2.99	15	37.5	11	50.0		
GPA 3.00 to 3.49	21	52.5	8	36.4		
GPA 3.50 to 4.00	<u>2</u>	<u>5.0</u>	<u>1</u>	<u>4.5</u>		
	40	100.0	22	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	3	10.7	6.323	.097
GPA 2.50 to 2.99	10	45.5	18	64.3		
GPA 3.00 to 3.49	10	45.5	5	17.9		
GPA 3.50 to 4.00	<u>2</u>	<u>9.0</u>	<u>2</u>	<u>7.1</u>		
	22	100.0	28	100.0		

*p<.05; statistically significant difference

Table 25

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College B Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	3.6	2	8.3	7.80	.050
GPA 2.50 to 2.99	4	14.3	11	45.8		
GPA 3.00 to 3.49	17	60.7	9	37.5		
GPA 3.50 to 4.00	<u>6</u>	<u>21.4</u>	<u>2</u>	<u>8.3</u>		
	28	100.0	24	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	2	8.4	9.094	.028*
GPA 2.50 to 2.99	6	24.0	12	50.0		
GPA 3.00 to 3.49	15	60.0	5	20.8		
GPA 3.50 to 4.00	<u>4</u>	<u>16.0</u>	<u>5</u>	<u>20.8</u>		
	25	100.0	24	100.0		

*p<.05; statistically significant difference

Table 26

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College C Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	2	3.8	3	27.3	8.952	.030*
GPA 2.50 to 2.99	18	34.0	5	45.5		
GPA 3.00 to 3.49	16	30.2	2	18.2		
GPA 3.50 to 4.00	<u>17</u>	<u>32.0</u>	<u>1</u>	<u>9.0</u>		
	53	100.0	11	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	10	18.5	7.537	.057
GPA 2.50 to 2.99	7	43.8	17	31.5		
GPA 3.00 to 3.49	2	12.4	16	29.6		
GPA 3.50 to 4.00	<u>7</u>	<u>43.8</u>	<u>11</u>	<u>20.4</u>		
	16	100.0	54	100.0		

*p<.05; statistically significant difference

The results for College D are reported in Table 27. Given a computed χ^2 of 24.107 and $p = .000$ for College D class of 1995, the null hypothesis was rejected. Given a computed χ^2 of 8.019 and $p = .046$ for the class of 2000, the null hypothesis was rejected. There was a significant relationship between nursing admission GPAs and the successful completion of the nursing program for the class of 1995 and the class of 2000. The Cramer's V statistics demonstrated identical p values of .000 for the class of 1995 and .046 for the class of 2000.

The results for College E are reported in Table 28. Given a computed χ^2 of 10.468 and $p = .015$ for College E class of 1995, the null hypothesis was rejected. Given a computed χ^2 of 20.318 and $p = .000$ for the class of 2000, the null hypothesis was rejected. There was a significant relationship between nursing admission GPAs and the successful completion of the nursing program for the class of 1995 and the class of 2000. The Cramer's V statistics demonstrated identical p values of .015 for the class of 1995 and .000 for the class of 2000.

The results for College F are reported in Table 29. Given a computed χ^2 of 9.006 and $p = .029$ for College F class of 1995, the null hypothesis was rejected. Given a computed χ^2 of 10.974 and $p = .012$ for the class of 2000, the null hypothesis was rejected. There was a significant relationship between nursing admission GPAs and the successful completion of the nursing program for the class of 1995 and the class of 2000.

Table 27

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College D Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	4.2	7	20.6	24.107	.000*
GPA 2.50 to 2.99	0	.0	15	44.1		
GPA 3.00 to 3.49	9	37.5	8	23.5		
GPA 3.50 to 4.00	<u>14</u>	<u>58.3</u>	<u>4</u>	<u>11.8</u>		
	24	100.0	34	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	2	15.3	8.019	.046*
GPA 2.50 to 2.99	4	17.4	5	38.5		
GPA 3.00 to 3.49	10	43.5	5	38.5		
GPA 3.50 to 4.00	<u>9</u>	<u>39.1</u>	<u>1</u>	<u>7.7</u>		
	23	100.0	13	100.0		

*p<.05; statistically significant difference

Table 28

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College E Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	2	3.4	0	.0	10.468	.015*
GPA 2.50 to 2.99	2	3.4	6	12.4		
GPA 3.00 to 3.49	14	24.1	21	43.8		
GPA 3.50 to 4.00	<u>40</u>	<u>69.0</u>	<u>21</u>	<u>43.8</u>		
	58	100.0	48	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	0	.0	20.318	.000*
GPA 2.50 to 2.99	2	4.8	8	17.0		
GPA 3.00 to 3.49	5	11.9	22	46.8		
GPA 3.50 to 4.00	<u>35</u>	<u>83.3</u>	<u>17</u>	<u>36.2</u>		
	42	100.0	47	100.0		

*p<.05; statistically significant difference

Table 29

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College F Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	1.8	3	13.0	9.006	.029*
GPA 2.50 to 2.99	5	9.1	5	21.7		
GPA 3.00 to 3.49	13	23.6	7	30.4		
GPA 3.50 to 4.00	<u>36</u>	<u>65.5</u>	<u>8</u>	<u>34.8</u>		
	55	100.0	23	100.0		
Class of 2000						
GPA 2.00 to 2.49	1	2.9	3	8.3	10.974	.012*
GPA 2.50 to 2.99	7	20.6	14	38.9		
GPA 3.00 to 3.49	12	35.3	16	44.4		
GPA 3.50 to 4.00	<u>14</u>	<u>41.2</u>	<u>3</u>	<u>8.3</u>		
	34	100.0	36	100.0		

*p<.05; statistically significant difference

The Cramer's V statistics demonstrated identical p values of .029 for the class of 1995 and .012 for the class of 2000.

The results for College G are reported in Table 30. Given a computed χ^2 of 22.076 and $p = .000$ for College G class of 1995, the null hypothesis was rejected. Given a computed χ^2 of 27.521 and $p = .000$ for the class of 2000, the null hypothesis was rejected. There was a significant relationship between nursing admission GPAs and the successful completion of the nursing program for the class of 1995 and the class of 2000. The Cramer's V statistics demonstrated identical p values of .000 for the class of 1995 and .000 for the class of 2000.

The results for College H are reported in Table 31. Given a computed χ^2 of 10.413 and $p = .015$ for College H class of 1995, the null hypothesis was rejected. Given a computed χ^2 of 20.021 and $p = .000$ for the class of 2000, the null hypothesis was rejected. There was a significant relationship between nursing admission GPAs and the successful completion of the nursing program for the class of 1995 and the class of 2000. The Cramer's V statistics demonstrated identical p values of .015 for the class of 1995 and .000 for the class of 2000.

The majority of the college results indicated a significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the nursing program in both the class of 1995 and the class of 2000. These findings support the effectiveness of using GPAs as criteria for admission and progression.

Table 30

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College G Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	5	7.0	16	38.1	22.076	.000*
GPA 2.50 to 2.99	26	36.7	17	40.5		
GPA 3.00 to 3.49	28	39.4	8	19.0		
GPA 3.50 to 4.00	<u>12</u>	<u>16.9</u>	<u>1</u>	<u>2.4</u>		
	71	100.0	42	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	6	9.2	27.521	.000*
GPA 2.50 to 2.99	12	23.1	40	61.5		
GPA 3.00 to 3.49	28	53.8	14	21.6		
GPA 3.50 to 4.00	<u>12</u>	<u>23.1</u>	<u>5</u>	<u>7.7</u>		
	52	100.0	65	100.0		

*p<.05; statistically significant difference

Table 31

Analysis of Nursing Admission Grade-Point Average and Program Completers for
College H Spring Associate-Degree Nursing Students

	<u>Program Completers</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	1.3	2	12.5	10.413	.015*
GPA 2.50 to 2.99	7	9.3	2	12.5		
GPA 3.00 to 3.49	31	41.3	10	62.5		
GPA 3.50 to 4.00	<u>36</u>	<u>48.0</u>	<u>2</u>	<u>12.5</u>		
	75	100.0	16	100.0		
Class of 2000						
GPA 2.00 to 2.49	2	4.5	9	23.7	20.021	.000*
GPA 2.50 to 2.99	8	18.2	16	42.1		
GPA 3.00 to 3.49	14	31.8	10	26.3		
GPA 3.50 to 4.00	<u>20</u>	<u>45.5</u>	<u>3</u>	<u>7.9</u>		
	44	100.0	38	100.0		

*p<.05; statistically significant difference

Analysis of Nursing Admission Grade-Point Average and Results on the National
Council Licensure Examination for Registered Nurses

Null Hypothesis 6: There is no relationship between the mean cumulative nursing admission GPA and the success on the NCLEX-RN for TBR community college associate-degree nursing graduates in the class of 1995 and in the class of 2000.

This analysis was designed to determine the association between cumulative mean nursing admission GPA and success on the NCLEX-RN. The chi square test of independence was computed to determine if there were significant differences in nursing admission GPAs and success on the NCLEX-RN in the class of 1995 and in the class of 2000. The results of College A are reported in Table 32. Given a computed χ^2 of .509 and $p = .917$ for College A class of 1995, the null hypothesis was retained. Given a computed χ^2 of .772 and $p = .680$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN for the class of 1995 and the class of 2000. The Cramer's V statistics demonstrated identical p values of .917 for the class of 1995 and .680 for the class of 2000.

The results for College B are reported in Table 33. Since all the students were successful, no statistics were computed for the class of 1995. Given a computed χ^2 of .694 and $p = .707$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN in

Table 32

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College A Spring Associate-Degree Nursing Graduates

	<u>NCLEX-RN</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	2.9	0	.0	.509	.917
GPA 2.50 to 2.99	13	37.1	2	50.0		
GPA 3.00 to 3.49	19	54.3	2	50.0		
GPA 3.50 to 4.00	<u>2</u>	<u>5.7</u>	<u>0</u>	<u>.0</u>		
	35	100.0	4	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	0	.0	.772	.680
GPA 2.50 to 2.99	9	47.4	1	33.3		
GPA 3.00 to 3.49	8	42.1	2	66.7		
GPA 3.50 to 4.00	<u>2</u>	<u>10.5</u>	<u>0</u>	<u>.0</u>		
	19	100.0	3	100.0		

*p<.05; statistically significant difference

Table 33

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College B Spring Associate-Degree Nursing Graduates

	<u>NCLEX-RN</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	3.6	0	.0	**	**
GPA 2.50 to 2.99	4	14.3	0	.0		
GPA 3.00 to 3.49	17	60.7	0	.0		
GPA 3.50 to 4.00	<u>6</u> 28	<u>21.4</u> 100.0	<u>0</u> 0	<u>.0</u> .0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	0	.0	.694	.707
GPA 2.50 to 2.99	6	25.0	0	.0		
GPA 3.00 to 3.49	14	58.3	1	100.0		
GPA 3.50 to 4.00	<u>4</u> 24	<u>16.7</u> 100.0	<u>0</u> 1	<u>.0</u> 100.0		

*p<.05; statistically significant difference

**no statistics were computed because there were no failing NCLEX-RN scores

the class of 2000. The Cramer's V statistic demonstrated identical p values of .707 for the class of 2000.

The results of College C are reported in Table 34. Given a computed χ^2 of .132 and $p = .988$ for College C class of 1995, the null hypothesis was retained. Given a computed χ^2 of 1.371 and $p = .504$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN for the class of 1995 and the class of 2000. The Cramer's V statistics demonstrated identical p values of .988 for the class of 1995 and .504 for the class of 2000.

The results for College D are reported in Table 35. Since all the students were successful, no statistics were computed for the class of 1995. Given a computed χ^2 of 1.359 and $p = .507$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN in the class of 2000. The Cramer's V statistic demonstrated identical p values of .507 for the class of 2000.

The results of College E are reported in Table 36. Given a computed χ^2 of 6.161 and $p = .104$ for College E class of 1995, the null hypothesis was retained. Given a computed χ^2 of .205 and $p = .903$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN for the class of 1995 and the class of 2000. The Cramer's V statistics

Table 34

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College C Spring Associate-Degree Nursing Graduates

	NCLEX-RN				χ^2	p
	Successful		Unsuccessful			
	f	%	f	%		
Class of 1995						
GPA 2.00 to 2.49	2	4.0	0	.0	.132	.988
GPA 2.50 to 2.99	17	34.0	1	33.3		
GPA 3.00 to 3.49	15	30.0	1	33.3		
GPA 3.50 to 4.00	<u>16</u>	<u>32.0</u>	<u>1</u>	<u>33.3</u>		
	50	100.0	3	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	0	.0	1.371	.504
GPA 2.50 to 2.99	6	40.0	1	100.0		
GPA 3.00 to 3.49	2	13.3	0	.0		
GPA 3.50 to 4.00	<u>7</u>	<u>46.7</u>	<u>0</u>	<u>.0</u>		
	15	100.0	1	100.0		

*p<.05; statistically significant difference

Table 35

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College D Spring Associate-Degree Nursing Graduates

	NCLEX-RN				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	4.2	0	.0	**	**
GPA 2.50 to 2.99	0	.0	0	.0		
GPA 3.00 to 3.49	9	37.5	0	.0		
GPA 3.50 to 4.00	<u>14</u>	<u>58.3</u>	<u>0</u>	<u>.0</u>		
	24	100.0	0	.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	0	.0	1.359	.507
GPA 2.50 to 2.99	4	18.2	0	.0		
GPA 3.00 to 3.49	9	40.9	1	100.0		
GPA 3.50 to 4.00	<u>9</u>	<u>40.9</u>	<u>0</u>	<u>.0</u>		
	22	100.0	1	100.0		

*p<.05; statistically significant difference

**no statistics computed because there were no failing NCLEX-RN scores

Table 36

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College E Spring Associate-Degree Nursing Graduates

	<u>NCLEX-RN</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	2	3.7	0	.0	6.161	.104
GPA 2.50 to 2.99	1	1.9	1	25.0		
GPA 3.00 to 3.49	13	24.1	1	25.0		
GPA 3.50 to 4.00	<u>38</u>	<u>70.4</u>	<u>2</u>	<u>50.0</u>		
	54	100.0	4	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	0	.0	.205	.903
GPA 2.50 to 2.99	2	4.9	0	0		
GPA 3.00 to 3.49	5	12.2	0	0		
GPA 3.50 to 4.00	<u>34</u>	<u>82.9</u>	<u>1</u>	<u>100.0</u>		
	41	100.0	1	100.0		

*p<.05; statistically significant difference

Table 37

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College F Spring Associate-Degree Nursing Graduates

	<u>NCLEX-RN</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	1.8	0	.0	**	**
GPA 2.50 to 2.99	5	9.1	0	.0		
GPA 3.00 to 3.49	13	23.6	0	.0		
GPA 3.50 to 4.00	<u>36</u>	<u>65.5</u>	<u>0</u>	<u>.0</u>		
	55	100.0	0	.0		
Class of 2000						
GPA 2.00 to 2.49	1	3.0	0	.0	3.974	.264
GPA 2.50 to 2.99	6	18.2	1	100.0		
GPA 3.00 to 3.49	12	36.4	0	.0		
GPA 3.50 to 4.00	<u>14</u>	<u>42.4</u>	<u>0</u>	<u>.0</u>		
	33	100.0	1	100.0		

*p<.05; statistically significant difference

**no statistics computed because there were not failing NCLEX-RN scores

demonstrated identical p values of .104 for the class of 1995 and .903 for the class of 2000.

The results of College F are reported in Table 37. Because all the students were successful, no statistics were computed for the class of 1995. Given a computed χ^2 of 3.974 and $p = .264$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN in the class of 2000. The Cramer's V statistics demonstrated identical p values of .264 for the class of 2000.

The results of College G are reported in Table 38. Given a computed χ^2 of 6.552 and $p = .088$ for College G class of 1995, the null hypothesis was retained. Given a computed χ^2 of 4.742 and $p = .093$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN for the class of 1995 and the class of 2000. The Cramer's V statistics demonstrated identical p values of .088 for the class of 1995 and .093 for the class of 2000.

The results of College H are reported in Table 39. Given a computed χ^2 of 4.813 and $p = .186$ for College H class of 1995, the null hypothesis was retained. Given a computed χ^2 of 1.293 and $p = .731$ for the class of 2000, the null hypothesis was retained. No significant relationship existed between nursing admission GPAs and success on the NCLEX-RN for the class of 1995 and the class of 2000. The Cramer's V statistics

demonstrated identical p values of .186 for the class of 1995 and .731 for the class of 2000.

None of the tests indicated a significant relationship existed between the cumulative mean nursing admission GPA and success on the NCLEX-RN for the class of 1995 and the class of 2000. Some caution should be used when stating these findings without considering the results from hypothesis 5. The significance of this is discussed more in chapter 5.

Appendix A is a summary of the findings concerning grade inflation and the association of nursing admission GPAs to successful completion of the nursing program and success of nursing licensure exam. A summary of the results for each hypothesis is in appendix B. The findings of the analyses are summarized in chapter 5. The conclusions and recommendations to improve practice and for future research are also included in chapter 5.

Table 38

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College G Spring Associate-Degree Nursing Graduates

	<u>NCLEX-RN</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	4	5.8	1	50.0	6.552	.088
GPA 2.50 to 2.99	26	37.7	0	.0		
GPA 3.00 to 3.49	27	39.1	1	50.0		
GPA 3.50 to 4.00	<u>12</u>	<u>17.4</u>	<u>0</u>	<u>.0</u>		
	69	100.0	2	100.0		
Class of 2000						
GPA 2.00 to 2.49	0	.0	0	.0	4.742	.093
GPA 2.50 to 2.99	12	25.5	0	.0		
GPA 3.00 to 3.49	23	49.0	5	100.0		
GPA 3.50 to 4.00	<u>12</u>	<u>25.5</u>	<u>0</u>	<u>.0</u>		
	47	100.0	5	100.0		

*p<.05; statistically significant difference

Table 39

Analysis of Nursing Admission Grade-Point Average and Success on the NCLEX-RN for College H Spring Associate-Degree Nursing Graduates

	<u>NCLEX-RN</u>				χ^2	p
	<u>Successful</u>		<u>Unsuccessful</u>			
	<u>f</u>	<u>%</u>	<u>f</u>	<u>%</u>		
Class of 1995						
GPA 2.00 to 2.49	1	1.4	0	.0	4.813	.186
GPA 2.50 to 2.99	7	10.1	0	.0		
GPA 3.00 to 3.49	26	37.7	5	83.3		
GPA 3.50 to 4.00	<u>35</u>	<u>50.7</u>	<u>1</u>	<u>16.7</u>		
	69	100.0	6	100.0		
Class of 2000						
GPA 2.00 to 2.49	2	4.8	0	.0	1.293	.731
GPA 2.50 to 2.99	8	19.0	0	.0		
GPA 3.00 to 3.49	14	33.3	0	.0		
GPA 3.50 to 4.00	<u>18</u>	<u>42.9</u>	<u>1</u>	<u>100.0</u>		
	42	100.0	1	100.0		

*p<.05; statistically significant difference

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Nursing educators are obligated to protect the safety and welfare of the public by ensuring that all students who graduate from nursing programs are competent. With today's limited budgets in higher education and increased requirements on colleges to demonstrate accountability, it is important to admit students who are likely to succeed. Each of the nursing programs involved in this study had a required minimum GPA as one of the admission criteria. If grade distributions changed over time or if grade inflation did occur, the reliability of using a minimum GPA would need to be evaluated.

Although nursing researchers have conducted many studies on predictors of success, a limited number of studies have been conducted on associate-degree nursing education. Unfortunately, none of the studies has consistently identified one set of successful criteria for admission into a nursing program. Because change continues to occur in nursing education, in the type of student recruited into nursing and in the NCLEX-RN test plan, it is difficult to achieve one consistently accurate method to select only students who are likely to succeed. However, each school can benefit by evaluating institution-specific student academic information and by studying information learned from similar institutions.

This study was conducted using community college associate-degree nursing programs in the Tennessee Board of Regents system. Information on students admitted into each college in the class of 1995 and the class of 2000 was studied. The class of 1995 admission and graduation GPAs were compared to those of the class of 2000. Mean grades earned each semester in clinical nursing courses were compared between the class of 1995 and the class of 2000. The differences in the percentages of the grade B and higher and the grade C or below earned each semester in clinical nursing courses for the class of 1995 and the class of 2000 were computed. The difference between mean cumulative nursing admission GPA and successful program completion for the class of 1995 and the class of 2000 was computed. The last computation involved the difference between the mean cumulative nursing admission GPA and success on the NCLEX-RN for the class of 1995 and the class of 2000. The population included 1,256 who were enrolled in eight TBR community college associate-degree nursing programs.

Because no previous studies were located on grade inflation in nursing, the purpose of this study was to assess whether grade inflation had occurred and to evaluate if GPAs are effective admission and progression criteria or predictors of success. Grade inflation, defined in chapter one, would have occurred in disciplines other than nursing had the cumulative mean nursing admission GPA increased between the class of 1995 and the class of 2000 (Hypothesis 1). Grade inflation would have occurred in nursing had the cumulative mean nursing graduation GPA (Hypothesis 2), mean grades earned in

clinical nursing courses (Hypothesis 3) or the percentage of the grade B and higher (Hypothesis 4) increased between the class of 1995 and the class of 2000.

The effectiveness of using a cumulative mean nursing admission GPAs as admission and progression criteria would have been demonstrated by a significant relationship between cumulative mean nursing admission GPA and successful completion of the program (Hypothesis 5). The effectiveness of using a cumulative mean nursing admission GPA as a predictor of success would have been demonstrated by a significant relationship between cumulative mean nursing admission GPA and success on the NCLEX-RN (Hypothesis 6).

As stated earlier, it was not the intent of this study to make comparisons among institutions, but rather to make an institution-specific comparison between the class of 1995 and the class of 2000. Therefore, a summary for each college was given followed by the conclusions.

College A Findings

College A class of 1995 mean admission GPA was not statistically significantly different from the class of 2000. The results indicated that grade inflation had not occurred in disciplines other than nursing between the class of 1995 and the class of 2000. The class of 1995 mean graduation GPA was not significantly different from the class of 2000. The mean clinical nursing grades and the percentage of the grade B and higher earned were not significantly different in three of the four semesters. The results

indicated that grade inflation had not occurred in nursing between the class of 1995 and the class of 2000. No significant relationship existed between the cumulative mean nursing admission GPAs and successful completion of the program or NCLEX-RN.

College B Findings

College B class of 1995 admission GPAs were not statistically significantly different from the class of 2000. The results indicated that grade inflation had not occurred in disciplines other than nursing between the class of 1995 and the class of 2000. The class of 1995 graduation GPAs were not statistically significantly different from the class of 2000. The mean clinical nursing grades and the percentage of the grade B and higher earned by the class of 2000 were significantly higher in three of the four semesters. Although the graduating GPAs did not rise significantly, the rise in the mean grades earned each semester in clinical nursing courses and in the percentage of grade B and higher indicated grade inflation had occurred in nursing between the class of 1995 and the class of 2000. A significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the program for the class of 2000. No significant relationship existed between the cumulative mean nursing admission GPAs and success on the NCLEX-RN.

College C Findings

College C class of 1995 admission GPAs were not statistically significantly different from the class of 2000. The results indicated that grade inflation had not

occurred in disciplines other than nursing between the class of 1995 and the class of 2000. The class of 1995 graduation GPAs were not significantly different from the class of 2000. The mean clinical nursing grades and the percentage of grades B and higher earned were significantly different in three of the four semesters. However, the mean clinical nursing course grades and the percentage of grade B and higher decreased significantly from the class of 1995 to the class of 2000. The results indicated that grade inflation had not occurred in nursing between the class of 1995 and the class of 2000. A significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the program for the class of 1995. No significant relationship existed between the cumulative mean nursing admission GPAs and success on the NCLEX-RN.

College D Findings

College D class of 1995 admission GPAs were not statistically significantly different from the class of 2000. The results indicated that grade inflation had not occurred in disciplines other than nursing between the class of 1995 and the class of 2000. The class of 1995 graduation GPAs were not significantly different from the class of 2000. There was a statistically significant higher mean in clinical nursing courses in two of the four semesters. However, there were no significant differences in the percentage of grade B and higher. Therefore, the overall results indicated that grade inflation had not occurred in nursing between the class of 1995 and the class of 2000. A

significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the program for the class of 1995 and the class of 2000. No significant relationship existed between the cumulative mean nursing admission GPAs and success on the NCLEX-RN.

College E Findings

College E class of 1995 admission GPAs were not statistically significantly different from the class of 2000. The results indicated that grade inflation had not occurred in disciplines other than nursing between the class of 1995 and the class of 2000. The class of 1995 graduation GPAs were not significantly different from the class of 2000. The mean clinical nursing grades were significantly different in three of the four semesters. The percentage of grade B and higher were significantly different in two of the four semester. While there was a significant rise in the mean clinical nursing grade in two semesters, only one semester had a significant rise in the percentage of grade of B and higher. The overall results indicated that grade inflation had not occurred in nursing between the class of 1995 and the class of 2000. Caution should be used in interpreting College E results regarding grade inflation in nursing because a curriculum change had occurred between the designated years of the study. A significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the program for the class of 1995 and the class of 2000. No significant relationship existed between the cumulative mean nursing admission GPAs and success on the NCLEX-RN.

College F Findings

College F class of 1995 admission GPAs was statistically significantly different from the class of 2000. The cumulative mean nursing admission GPAs had actually decreased from the class of 1995 to the class of 2000. Therefore, the results indicated that grade inflation had not occurred in disciplines other than nursing between the class of 1995 and the class of 2000. The class of 1995 graduation GPAs were not significantly different from the class of 2000. The mean clinical nursing grades and the percentage of grade B and higher were significantly different in one of the four semesters. However, the mean clinical nursing grades and the percentage of the grade B and higher had significantly decreased during that semester. The results indicate grade inflation had not occurred in nursing between the class of 1995 and the class of 2000. A significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the program for the class of 1995 and the class of 2000. No significant relationship existed between the cumulative mean nursing admission GPAs and success on the NCLEX-RN.

College G Findings

College G class of 1995 admission GPAs were statistically significantly different from the class of 2000. Caution must be used in interpreting the results of the admission GPAs due to the fact that College G changed the required admission GPA from 2.0 to 2.5 during the designated years of the study. Although there was a rise in mean GPA that

would indicate grade inflation had occurred in disciplines other than nursing, the change in the required GPA could account for the difference. The class of 1995 graduation GPAs were not significantly different from the class of 2000. The mean clinical nursing grades were significantly different in two of the four semesters. The percentage of grade B and higher were significantly different in one of the four semesters. However, the mean clinical nursing grades and the percentage of the grade B and higher had significantly decreased. Therefore, the results indicated that grade inflation had not occurred in nursing between the class of 1995 and the class of 2000. A significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the program for the class of 1995 and the class of 2000. No significant relationship existed between the cumulative mean nursing admission GPAs and success on the NCLEX-RN.

College H Findings

College H class of 1995 admission GPAs was statistically significantly different from the class of 2000. The cumulative mean nursing admission GPAs had actually decreased from 1995 to 2000. The results indicated that grade inflation had not occurred in disciplines other than nursing between the class of 1995 and the class of 2000. The class of 1995 graduation GPAs were not significantly different from the class of 2000. The mean clinical nursing grades were significantly different in three of the four semesters. The percentage of grade B and higher was significantly different in one of the

four semesters. However, the mean clinical nursing grades and the percentage of grade B and higher had significantly decreased. Therefore, the results indicated that grade inflation had not occurred in nursing between the class of 1995 and the class of 2000. Caution must be used when interpreting the results regarding grade inflation in nursing because College H had a curriculum change during the designated years of the study. A significant relationship existed between the cumulative mean nursing admission GPA and successful completion of the program for the class of 1995 and the class of 2000. No significant relationship existed between the cumulative mean nursing admission GPAs and success on the NCLEX-RN.

Conclusions

The majority of the colleges' mean nursing admission GPAs had not changed significantly from the class of 1995 to the class of 2000. These results are consistent with the studies conducted by Bejar and Blew (1981) and Juola (1980) which indicated that the rise in GPAs had slowed since 1975. Five of the eight colleges had a decrease in the mean nursing admission GPAs from 1995 to 2000. The findings did not predominantly indicate grade inflation had occurred from 1995 to 2000 in courses taken in other disciplines prior to admission into the nursing program.

There were no statistically significant differences in the cumulative nursing graduating GPAs between the class of 1995 and the class of 2000. Seven of the eight colleges did not have statistically significant higher mean clinical nursing grades or an

increase in the percentage of grade of B and higher awarded. The findings did not indicate grade inflation had occurred from 1995 to 2000 in clinical nursing courses.

The majority of the college results indicated a significant association existed between the cumulative mean nursing admission GPA and successful completion of the nursing program in both the class of 1995 and the class of 2000. These results are consistent with the studies conducted by Campbell and Dickson (1996) and Clemence and Brink (1978) that indicated GPAs were effective indicators of successful program completion.

No results indicated a significant association existed between the cumulative mean nursing admission GPA and success on the NCLEX-RN for the class of 1995 or the class of 2000. However, it is important to note when interpreting the results from Hypothesis 6 that only students who successfully completed the nursing program were eligible to write the NCLEX-RN. Therefore, the results from Hypothesis 5 that indicated a relationship did exist between cumulative nursing admission GPAs and successful completion of the program must be considered in the interpretation. Approximately 95% of students who successfully completed the nursing program successfully passed the NCLEX-RN. This fact suggests that a relationship does exist between admission GPAs, successful completion of the program, and success on the NCLEX-RN. These results parallel studies by Engelhardt (1987), Felts (1986), and Melcolm, Venn, and Bausell (1981) that

indicated admission GPAs and grades in nursing were predictors of success on the NCLEX-RN.

Recommendations

For Practice

Preventing grade inflation in nursing is of critical importance. Adhering to reliable grading standards and ensuring that graduates meet critical competencies are essential to the safety and welfare of society. Establishing effective admission criteria is also a major concern in nursing education.

As previous research has concluded, no one variable has proven to be an effective criterion for selection or prediction of success except admission GPA. It is very important for nursing educators to consider carefully all variables that contribute to the success of a student. Particular attention needs to be given to policies used by the college that may inflate grades or allow students to avoid unwanted grades. It is also imperative for all disciplines involved in the education of a nurse to be accountable as a team for ensuring that students who graduate are safe and competent.

For Future Research

The results of this study are only one small step in addressing the possible effects of grade inflation in nursing education. Each college needs to continue to collect student data and consider all policy and curriculum changes when analyzing the results.

It is equally important to use caution in comparing data among colleges, due to the institution-specific policies and requirements. Misinterpretation could occur if data are used in isolation without considering changes that might have occurred during the same period of time. A change in policy between two time periods might account for any differences revealed by statistical tests.

Each college establishes the format used to post transfer student grades and develops the policy used to determine if transfer grades are used when calculating cumulative GPAs. Policies that determine whether a repeat course grade replaces the first grade also vary from college to college. Therefore, it is important for each college to analyze its own performance in light of its own policies to ensure correct interpretation is made.

With the intensifying financial situation in Tennessee higher education, it will be critical for educators to take the lead in decision-making. As stakeholders demand more accountability from higher education, the legislature is becoming more active in making decisions that affect education. Nursing educators must not rely on others to make decisions that will affect nursing practice. Instead, educators who are intimately aware of the characteristics that are unique to their institution should take the opportunity to assess, investigate, and drive any change that is needed.

Additional research is needed in associate-degree nursing to ensure continuous improvement and accountability. The following are recommendations for future research:

1. Regularly evaluate grade distribution trends in each nursing program.
2. Explore the effectiveness of requiring minimum GPAs and other college courses prior to admission.
3. Explore college-wide grade distribution trends.
4. Explore the relationship between recruitment activities, advising, and success in the nursing program.
5. Conduct qualitative research with successful and non-successful nursing students to consider the extent academic and non-academic variables such as critical thinking abilities, time management, financial ability, family and work responsibilities, and social issues impact success.
6. Investigate academic policies that affect GPAs and success such as allowing students to withdraw, audit, or repeat courses and readmitting students who were previously unsuccessful.

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APPENDICES

APPENDIX A

Summary of the Findings Concerning Grade Inflation and the Association of Nursing Admission Grade-Point Averages to Successful Completion of the Nursing Program and Success on the Nursing Licensure Exam

Question	College A	College B	College C	College D	College E	College F	College G	College H
1. Did the cumulative mean nursing admission GPA significantly increase between the class of 1995 and the class of 2000 to indicate that grade inflation had occurred in college courses taken prior to admission into nursing?	No	No	No	No	No	No	Yes*	No
2. Did the results of the comparison among cumulative mean graduating GPA, mean grades and the percentages of grades B and higher earned each semester in clinical nursing courses predominantly indicate that grade inflation had occurred in clinical nursing courses?	No	Yes	No	No	No**	No	No	No**

Question	College A	College B	College C	College D	College E	College F	College G	College H
3a. Was the successful completion of the nursing program for the class of 1995 associated with the cumulative mean nursing admission GPA?	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3b. For the class of 2000?	No	Yes	No	Yes	Yes	Yes	Yes	Yes
4a. Was success on the NCLEX-RN results for the class of 1995 associated with the cumulative mean nursing admission GPA?	No	***	No	***	No	***	No	No
4b. For the class of 2000?	No	No	No	No	No	No	No	No

* Caution must be used when interpreting this situation because the minimum cumulative mean admission requirement increased between 1995 and 2000

**Caution must be used when interpreting this situation because curriculum changes occurred between 1995 and 2000

***No statistics were computed because there were no failing NCLEX-RN scores

APPENDIX B

Summary of Hypothesis Testing

Hypothesis	Table	College	Results
Hypothesis 1: There is no difference in the cumulative mean nursing admission GPA between the TBR community college spring associate-degree nursing students in the class of 1995 and the class of 2000	Table 6	College A	Hypothesis retained
	Table 6	College B	Hypothesis retained
	Table 6	College C	Hypothesis retained
	Table 6	College D	Hypothesis retained
	Table 6	College E	Hypothesis retained
	Table 6	College F	Hypothesis rejected
	Table 6	College G	Hypothesis rejected
	Table 6	College H	Hypothesis rejected
Hypothesis 2: There is no difference in the cumulative mean graduating GPA between the TBR community college spring associate-degree nursing graduates in the class of 1995 and the class of 2000	Table 7	College A	Hypothesis retained
	Table 7	College B	Hypothesis retained
	Table 7	College C	Hypothesis retained
	Table 7	College D	Hypothesis retained
	Table 7	College E	Hypothesis retained
	Table 7	College F	Hypothesis retained
	Table 7	College G	Hypothesis retained
	Table 7	College H	Hypothesis retained

Hypothesis 3: There is no difference in the mean nursing grades earned each semester in clinical nursing courses between the TBR community college spring semester associate-degree nursing students in the class of 1995 and in the class of 2000	Table 8	College A	Hypothesis retained for the first, second, and third semester. Hypothesis rejected for fourth semester.
	Table 9	College B	Hypothesis retained for the third semester. Hypothesis rejected for the first, second, and fourth semester.
	Table 10	College C	Hypothesis retained for the fourth semester. Hypothesis rejected for the first, second, and third semester.
	Table 11	College D	Hypothesis retained for the first and fourth semester. Hypothesis rejected for the second and third semester.
	Table 12	College E	Hypothesis retained for the first semester. Hypothesis rejected for the second, third, and fourth semester.
	Table 13	College F	Hypothesis retained for the first, second, and fourth semester. Hypothesis rejected for the third semester.
	Table 14	College G	Hypothesis retained for the second and fourth semester. Hypothesis rejected for the first and third semester.
	Table 15	College H	Hypothesis retained for the fourth semester. Hypothesis rejected for the first, second, and third semester.

Hypothesis 4: There is no difference in the percentages of grade B and higher and the grade C and below earned each semester in clinical nursing courses between the TBR community college spring semester associate-degree nursing students in the class of 1995 and the class of 2000	Table 16	College A	Hypothesis retained for the first, second, and third semester. Hypothesis rejected for the fourth semester.
	Table 17	College B	Hypothesis retained for the third semester. Hypothesis rejected for the first, second, and fourth semester.
	Table 18	College C	Hypothesis retained for the fourth semester. Hypothesis rejected for the first, second, and third semester.
	Table 19	College D	Hypothesis retained for first, second, third and fourth semester.
	Table 20	College E	Hypothesis retained for the first and fourth semester. Hypothesis rejected for the second and third semester.
	Table 21	College F	Hypothesis retained for the first, second, and fourth semester. Hypothesis rejected for the third semester.
	Table 22	College G	Hypothesis retained for the first, second, and fourth semester. Hypothesis rejected for the third semester.
	Table 23	College H	Hypothesis retained for the second, third and fourth semester. Hypothesis rejected for the first semester.

Hypothesis 5: There is no relationship between mean cumulative nursing admission GPA and successful program completion of TBR spring associate-degree nursing students in the class of 1995 and the class of 2000	Table 24	College A	Hypothesis retained for 1995 and 2000
	Table 25	College B	Hypothesis retained for 1995; rejected for 2000
	Table 26	College C	Hypothesis retained for 2000; rejected for 1995
	Table 27	College D	Hypothesis rejected for 1995 and 2000
	Table 28	College E	Hypothesis rejected for 1995 and 2000
	Table 29	College F 1995	Hypothesis rejected for 1995 and 2000
	Table 30	College G 1995	Hypothesis rejected for 1995 and 2000
	Table 31	College H 1995	Hypothesis rejected for 1995 and 2000

Hypothesis 6: There is no relationship between mean cumulative nursing admission GPA and the success on the NCLEX-RN for TBR spring associate-degree nursing graduates in the class of 1995 and in the class of 2000	Table 32	College A	Hypothesis retained for 1995 and 2000
	Table 33	College B	Hypothesis retained for 1995 and 2000
	Table 34	College C	Hypothesis retained for 1995 and 2000
	Table 35	College D	Hypothesis retained for 1995 and 2000
	Table 36	College E	Hypothesis retained for 1995 and 2000
	Table 37	College F	Hypothesis retained for 1995 and 2000
	Table 38	College G	Hypothesis retained for 1995 and 2000
	Table 39	College H	Hypothesis retained for 1995 and 2000

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