

Factors Affecting Practical Nursing Student Attrition

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ABSTRACT

This study investigated factors that affect student attrition for 151 students in a practical nursing program. The academic variables studied were scores on preadmission tests and grades in required prerequisite courses. The demographic variables included age, gender, and race. The analysis of the data obtained from student records revealed a statistically significant difference between the retention and attrition student groups for the variables of race, preadmission test scores, and prerequisite course grades. Recommendations for a retention program to reduce attrition were made based on the findings of this study.

In response to national concerns about the current and acute nursing shortage, numerous efforts have been suggested and instituted by individuals and organizations who recognize nurses as a crucial part of the health care system. Contributing to the nursing shortage in the workforce is the parallel and continual problem of attrition among nursing students. The number of new enrollees in nursing programs is too low to ensure an adequate nursing work-

force to meet future health care needs; the severity of the problem is further worsened by attrition of students over the course of their programs. The National League for Nursing (2004) stated that the "supply will fall short of the demand and the gap will continue to grow" (p. 1). By 2020, the RN workforce will be nearly 20% below the projected requirements (Buerhaus, Staiger, & Auerbach, 2000).

Efforts by health care organizations, legislative bodies, and the nursing profession to address the nursing shortage can be grouped into three categories (Florida Center for Nursing, 2005). The first strategy has been to modify the existing workplace to retain nurses who are currently working. The second strategy is to change the image of nursing through increased marketing efforts to recruit more students into nursing programs. The third strategy is to alleviate the shortage of nurses by retaining current nursing students. These students have already shown an interest in the profession of nursing and are working toward that goal. Efforts to retain nursing students should be a high priority because this is an immediate component of easing the nursing shortage, as they are already enrolled in nursing programs. Licensed practical nurses, who usually are not included in the predictions of or strategies to address the shortage, could contribute to easing of the shortage among employers in the process of reconfiguring the institutional environment toward a team approach. Therefore, addressing attrition and promoting student retention in practical nursing programs are strategies

that may be useful to ensure that nursing care services are sufficiently available.

Literature Review

The most frequently cited model used for studying attrition was developed by Tinto (1975). The basic premise of Tinto's model is that departure, or attrition, is a longitudinal process that starts when students present with individual attributes, family backgrounds, and academic characteristics and skills (Pascarella & Terenzini, 1991). The process continues as a series of interactions between the individual and the institution, during which a student is integrated both socially and academically in an attempt to retain students until degree completion (Tinto, 1982). Tinto (1982) stipulated that a single theory cannot explain all attrition; many other individual student attributes and factors external to the institution combine to influence students over the course of the educational program. Most studies of student retention focus on student characteristics without connecting the institutional fit to those characteristics (Borglum & Kubala, 2000).

Attrition theories can be applied to nursing education to determine which students may be at risk for attrition and may require intervention to be successful in a nursing program. Many earlier studies of nursing education and attrition were conducted between 1984 and 1990; this was most likely a reflection of the concerns at that time about declining nursing student enrollments (Campbell & Dickson,

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1996). The attrition factors studied can be grouped into three categories: personal and demographic variables, environmental variables, and academic variables. Personal variables influencing student attrition include perceptions of nursing, motivation, self-concept, life changes, and stress. Demographic variables including age, gender, and race have been addressed. Examples of environmental variables include the number of hours worked, adequacy of child care arrangements, and support services available. Academic variables studied include students' level of previous education, preadmission test scores, grade point average, and method of high school completion.

Although attrition is more of a problem in practical nursing programs, studies of attrition instead have focused mainly on RN programs. A recent search using CINAHL found only 17 articles published after 1992 on attrition among nursing students. Of these, only two were conducted with practical nursing students. Booth (1992) reported an attrition rate of 40% for practical nursing programs, and Moore (1996) reported national attrition rates for all nursing programs to be 20% to 41%. Among all levels of nursing education, the best predictor of future success has been past success (Campbell & Dickson, 1996; Kippenbrock, May, & Younes, 1996; Lewis & Lewis, 2000), as reflected in the academic variables of grade point average and pretesting scores. Campbell and Dickson (1996) reported parental education and age to be the best demographic predictors. Minority students had higher attrition rates than did majority students (Collins, 1987; Dowell, 1996; Parrish, 1994; Tumminia, 1997). Rodgers (1990) reported attrition of minority students to be as high as 85%.

Method

In this study, both demographic and academic variables that may contribute to student success or attrition in a practical nursing program were examined. Characteristics of

Measure	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>
TABE math			2.30	151	0.023
Retention	11.26	2.13			
Attrition	10.39	2.48			
TABE verbal			3.35	151	0.001
Retention	11.55	2.34			
Attrition	10.06	3.12			
TABE reading			2.36	151	0.020
Retention	12.05	1.73			
Attrition	11.29	2.23			
Introduction to Health Care course			2.63	151	0.009
Retention	3.38	0.71			
Attrition	3.07	0.68			
Medical Terminology course			4.16	151	0.000
Retention	3.31	0.77			
Attrition	2.77	0.79			

the nursing student population for 3 years were obtained from school records. Demographic data collected included age, gender, and race to determine whether these were a factor for any differences found between the two groups, those who finished the program and those who were lost to attrition. Academic variables studied included total scores and subscores on the Test of Adult Basic Education (TABE), which is used as a preadmission screening tool. The TABE consists of math, verbal/language, and readings sections and is used primarily to determine academic readiness for all vocational programs. The TABE results are given as grade level scores up to grade 12.9. At the time of this study, a grade level of 11 was required prior to graduation, rather than prior to admission, leaving many students unprepared for college-level academic work. The additional academic data collected included the grades earned in the two required prerequisite college credit courses, Introduction to Health Care and Medical Terminology. The highest possible grade for these courses was 4.0.

Study Participants

The study participants included 153 students who entered the practical nursing program of one community college in Florida from 1998 to 2000. Approximately half of all students were from minority populations, and the average age was 34 years. The students were divided into two groups: the retention group, who finished the 1-year program on time, and the attrition group, who did not complete the program during the academic year.

Results

The overall attrition rate for the study participants was 36.6%. Descriptive differences for the demographic variables of gender, age, and race were determined by conducting a cross-tabulation analysis. Attrition rates for male and female students were 37.5% and 36.6%, respectively; this was not a statistically significant difference. Age-related attrition rates were 48.1% ($n = 13$) for ages 36 to 45, 40% ($n = 8$) for ages 46 years and older, and between 33% and 40% for all other age ranges. The age differences

TABLE 2
Differences Between Groups for the Test of Adult Basic Education (TABE) and Prerequisite Course Grades

Measure	Mean	SD	<i>t</i>	<i>p</i>
TABE math			3.98	0.000
White	11.51	2.07		
Minority	10.08	2.33		
TABE verbal			6.34	0.000
White	12.03	1.79		
Minority	9.47	3.19		
TABE reading			4.65	0.000
White	12.34	1.23		
Minority	10.93	2.48		
Introduction to Health Care course			3.17	0.002
White	3.41	0.68		
Minority	3.05	0.72		
Medical Terminology course			3.30	0.001
White	3.28	0.77		
Minority	2.85	0.81		

in attrition rates were not significant. The attrition rate was 30% for White students, 48% for African American students, 44.4% for Hispanic students, and 50% for Asian students.

Analysis of the academic variables for grades in prerequisite courses and all sections of the TABE using *t* test for independent groups revealed differences between the retention and attrition groups. There was a significant difference between groups for all sections of the TABE and for both required prerequisite courses (Table 1).

Race was the only statistically significant demographic variable when attrition rates were calculated. Therefore, the analysis was broadened further to look at specific measures for White and minority students (Table 2).

Limitations

This study focused on students in one practical nursing program in Florida. All of the factors that may have affected the attrition for each of the students from this one nursing program were not included.

Discussion

The attrition rate of 36.6% for the entire sample in this study was comparable to other studies conducted with practical nursing students as participants (Booth, 1992). Academic variables, as measured with the TABE test and prerequisite courses, were significantly different for students in the retention group compared with students in the attrition group. Students in the retention group had overall higher academic ability than did those in the attrition group. This finding was similar to the findings of all previous studies on attrition. The current study revealed that race was the only statistically significant demographic variable. Overall, minority students did not perform as well academically. Collins (1987) and Parrish (1994) both concluded that non-White students had less chance for success. Race was also a major concern in other studies of nursing students (Dowell, 1996; Tumminia, 1997).

Conclusion

A retention program is needed to address the high attrition rates in

nursing programs. On the basis of these study results, sessions dealing with academic learning and study skills are a primary component of retention strategies. These sessions would be offered prior to the beginning of the nursing courses, as the main factor in high attrition was the documented low academic ability of some students as revealed in their TABE preadmission test scores and grades in required prerequisite courses. These early intervention sessions would satisfy the academic integration as outlined by Tinto (1975) and would be continued throughout the nursing program as needed. Another suggestion to reduce attrition is to evaluate the admission process and require higher TABE scores prior to admission rather than prior to graduation, as was the policy.

Tinto (1982) advocated social integration along with academic integration during student coursework. Social integration can be accomplished through study and support groups, referral to student services, and frequent contact with advisors in the nursing program. Participation would be encouraged especially for minority students because being a member of a racial minority emerged as a risk for high attrition in this study.

Recommendations for Future Study

A more encompassing study, expanded to include more students from other locations, is needed to look at additional variables that might affect the success of students in nursing programs. Although all variables of prospective students are impossible to measure, as many as possible should be determined so programs for incoming students can be developed and implemented to assist with variables that present as barriers to success in the nursing program. After the intervention programs for students have been completed, the influence of the programs can then be evaluated to determine their ability to retain students. Nursing students from all kinds of nursing programs, especially practical nursing programs, who are

retained rather than lost to attrition can ease the shortage of nurses in the health care industry.

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