EDUCATION NEWS

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VULNERABLE TIME PERIODS FOR ATTRITION DURING NURSE ANESTHESIA EDUCATION

Countrywide it has been established that there is a major shortage of Certified Registered Nurse Anesthetists, which is compounded by a relatively high attrition rate of student nurse anesthetists. A major factor found to influence the attrition rate of student nurse anesthetists has been the failure to be properly socialized into the profession. The purpose of this study was to identify patterns of socialization among graduate students of nurse anesthesia. Specifically, the aims were to identify periods within the professional socialization process where students may be at an increased risk for attrition. Overall, the study found that there is an identifiable time period (12-18 months of enrollment) where students are most vulnerable to attrition.

Key words: Attrition, nurse anesthesia, professional education, professional socialization.

The currrent shortage of Certified Registered Nurse Anesthetists is predicted to worsen in the next 10 years because of a number of factors including a shrinking workforce resulting from retirement of the "baby boomers." Faced with a growing shortage of qualified nurse anesthetists, it is imperative that nurse anesthesia educational programs take steps to increase the number of graduating nurse anesthetists. One serious problem for educators is the relatively high rate of attrition in nurse anesthesia programs. Mathis[1] reported a mean attrition rate of student nurse anesthetists of 8.2%. A major factor that influences the attrition rate of student nurse anesthestists has been the failure to be properly socialized into the profession.[2] Socialization is defined as the process that prepares people to perform social roles and has been described as the adoption of points of views and behaviors of a specific group.[3,4] It involves acquiring skills, language, values, folkways, and roles as part of a specific identity.[5] As students progress through the educational process, they are involved in experiences that members regard as prerequisite for inclusion into the profession. Intentionally planned and unplanned circumstances of the academic and clinical environment shape socialization.

In order to attain membership in the professional group and acquire the professional culture, students must demonstrate continuity in behavior.[6] Educational and professional values may differ from individual cultural values that could facilitate or create conflict and difficulty for some groups in socializing into the profession.[7] Gender and age differences also may contribute to or detract from the socialization process.[8]

Although little research exists in the area of changes in attitudes of students at particular times or points during their education, it has been suggested that there are vulnerable points along the socialization timeline that have an impact on attrition rates. Bullis and Bach[9] used "turning point analysis" to identify changes in socialization of students. According to Bullis and Bach,[9] the "turning point" is a valuable unit of analysis in organizational socialization research because turning point analysis:

1. Does not assume that the socialization process follows a clear pattern of growth as do phase models and identification research.
2. Allows a detailed examination of change points identified by participants rather than relying on researcher-generated definitions.
3. Collects self-reports in such a way that participants need not rely on their memories of events which occurred in the distant past.
4. Relies entirely on the reports of individuals who are actively involved in the socialization processes to report their experiences rather than relying on the organization's perspective.

The purpose of this study was to identify patterns of socialization among graduate nurse anesthesia students, specifically to identify periods within the professional socialization process where students may be at an increased risk for attrition.

Methodology

Following institutional review board approval, the authors conducted a prospective cross-sectional study of the population of all currently enrolled nurse anesthesia students (n = 2,008). Data from the questionnaires were evaluated and reported in frequencies and percentages. Pearson's χ^2 square analysis was applied to each item and weighted least squares linear analysis of variance (categorical ANOVA) was used to assess the statistical influence of length of enrollment and regions on all scales and dimensions of socialization.

Instrument

The Student Nurse Anesthetist Experience Questionnaire (SNAEQ) was developed in 1981 by Waugaman[4] and modified from an instrument originally used by Simpson.[6] The SNAEQ was found to be reliable and valid in assessing the dimensions of professional socialization of nurse anesthetists in previous studies.[7,8] Eight scales were used to examine the dimensions of socialization (Table). The dimensions of socialization include: (1) education: the imparting of occupational knowledge and skills; (2) cognitive occupational orientations to the role and a place in the occupation: functions of the occupation's work and the interests of the internal organization of the occupation collectively and its position in the labor force and its career line; and (3) relatedness to the professional role: the relationship of self to the occupation through status identification, commitment, and attraction.

The SNAEQ is made up of 78 questions/statements. Questions 1-22 and 77 identify demographic data. Questions/statements 23-59 identify the dimensions of socialization of nurse anesthesia. Questions 60-65 identify the influence of gender and age specifically on the socialization process. Questions 66-75 identify the influence of culture, race/ethnicity, language, and religious beliefs on the socialization process and are termed "the cultural influences scale." Questions 76 and 78 assess culturally congruent anesthesia care. The demographic item of region and the independent variable of length of enrollment were compared to all scaled items including the dimensions of socialization and their respective scales.

Results

Of the 2,008 questionnaires mailed, 1,119 were returned (55% response). Not all respondents completed each item, which resulted in some questions having different numbers of respondents in each variable. Respondents were defined by 6 month periods of enrollment in the continuum of the nurse anesthesia educational program. The resulting sample was comprised of 445 (39.8%) males and 672 (60.2%) females that mirror the Certified Registered Nurse Anesthetist distribution by gender within the United States. The distribution of the population of students placed a majority in the 1-2 year group (47%), followed by first-year students (40.8%), and students with at least 2 years of school completed being the minority (12.2%).

In comparing the age of students to year of enrollment, it was noted that the majority of students fell in the 31-40 year old age range; and there were significantly ($P = .001$) fewer students in the >40 year old group. Also, when divided by 6 month periods, there was a significant correlation ($P = .001$) between age and enrollment, with the students in the >40 year old category having the smallest number of students in the 12-18 month period being affected the most. The statistics

Table. The dimensions and scales of professional socialization of nurse anesthetists

Dimension	Scales
Education	Orientation to nurse anesthesia
Cognitive occupational orientations	Holistic vs bureaucratic view of patient care
	Administration and supervision
	Collegialism
Relatedness to the professional role	Attraction to nurse anesthesia
	Socioeconomic rewards
	Commitment to nurse anesthesia
	Self-identification as a Certified Registered Nurse Anesthetist

also revealed that there were slightly fewer males with at least 2 years of enrollment (10.34%) as compared with females (13.39%). In all cultural groups identified, there was a significant decrease ($P = .031$) in enrollment during the 12-18 month period; the group of students that identified themselves as "white," made up the majority of students.

There were significant differences in some of the scales by length of enrollment. In the Cognitive Occupational Orientations dimension, the Holistic vs Bureaucratic View of Patient Care scale ($P = .0265$) showed students in the 12-18 month enrollment period being most positively oriented to the bureaucratic view, and students in the >30 month enrollment period being more positively oriented to the holistic view. This scale dealt with the importance of following doctor's orders, keeping one's distance from patients, and the importance of technical responsibilities of the job. A positive orientation implied a bureaucratic focus rather than a patient-centered approach. In the Relatedness to the Professional Role dimension, the Socio-Economic scale ($P = .0257$) and Commitment to Nurse Anesthesia scale ($P = .0299$) both showed significant differences by length of enrollment. In the Socio-Economic scale, students in the 0-6 month enrollment period were the most positively oriented to economic rewards, while students in the 18-24 month group were the least oriented to economic reward. Students in the >30 month group were most positively oriented to the Commitment scale, while students in the 12-18 month group were the least positively oriented.

Discussion

When comparing years of enrollment, a significant ($P = .001$) drop in enrollment was found in the 1-2 year group when compared with the "at least 2 years" group. This data confirms a well-known phenomenon of how attrition occurs as the education process progresses, particularly when students enter the clinical component of their program. Interestingly, when looking at the numbers of students enrolled by 6-month periods, there is a significant ($P = .001$) drop in student enrollment by the 12-18 month period. We can assume that this time period is particularly stressful period for students, causing at-risk students to leave the program.

In nurse anesthesia educational programs, the clinical component often begins within the first 6-12 months of starting the program. Stress is typically highest during this period and may represent a turning point or group of turning points where students either make a decision to continue their education or drop out or, at worst, are asked to leave. In reviewing the data, it is apparent that there is a decrease in enrollment in the 12-18 month period and then a return to baseline numbers in the 18-24 month period. This distribution of students may be attributable to the study being a cross-sectional design and the fact that the questionnaire was mailed in the spring of the year when most students were in the 6-12 month and 18-24 month periods of their programs, as the majority of nurse anesthesia programs begin in the summer months.[10] However, when comparing length of enrollment to the different scales, students in the 12-18 month period were the least positively oriented to commitment. This validates the

previous suspicion that there may be a lapse in nurse anesthesia student socialization in the 12-18 month period.

There was a significant correlation ($P = .001$) between age and 6 month periods of enrollment, with the students in the >40 year old category having the smallest number of students in the 12-18 month period affected the most. Waugaman[8] found that increasing age was correlated to a less positive orientation to the dimension of personal relatedness to the professional role including career commitment. Being older may be associated with decreased willingness or ability to transcend the hardships faced by nurse anesthesia students, particularly in the beginning clinical months. The Holistic vs Bureaucratic scale compared with length of enrollment showed that students in the 12-18 month period were most positively oriented to bureaucratic rules and regulations. By this time in the program, students are adhering to established rules and are less likely to think independently. Perhaps in this time of most stress, students are less capable of being flexible and adapting to changes in the program.

The findings also indicated that new students seemed mostly interested in economic reward compared with students who were close to graduating and were less interested in economic reward. As students progress through the educational and concurrent socialization process, their attitudes and values change. Hill and MacGregor[11] found that graduating student nurses highly valued critical thinking and enhancement of practice. Graduating nurse anesthesia students also may become more focused on practice issues, with less regard for money.

A higher attrition rate was noted at 12-18 months of enrollment at a time when stress is typically the highest. As students are socialized to the profession and adapt to demands of the program, it is imperative that programs of nurse anesthesia take a careful look at their internal culture and identify means of facilitating student socialization in order to reduce attrition. Obviously, this is a complex area of study that requires further research. Because socialization takes place over the entire length of the program, in the future a longitudinal study may identify more specific changes or turning points in students' socialization to the profession of nurse anesthesia.

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