

ENTRY AND EXIT CHARACTERISTICS OF BACCALAUREATE NURSING STUDENTS

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The nursing profession endeavours to portray an image of the nurse that embodies autonomy, intelligent problem solving, and leadership in health care (Davenport, 1980; Partridge, 1978; Welch, 1980). Traditionally the nurse has been perceived as nurturing, subservient, and serving (Kaler, Levy, & Schall, 1989; Newton, 1981). As recently as 1989, Kaler et al. reported that the public image of the nurse continues to focus on the traditional feminine characteristics of helping others and demonstrating warmth and concern for others. Consistent with the media image of nurses, the public perceives nurses to be less intelligent, less independent, and less likely to value achievement than are physicians (Kalish & Kalish, 1986). It is therefore, reasonable to expect that the public image plays a major role in determining who enters the profession.

To achieve nursing education goals student characteristics should be taken into consideration during the planning and implementation of the curriculum. If a nursing program aims to prepare nurses who are independent, visionary leaders, then it is important to determine if the students entering the program have an interest in being change agents and have characteristics of autonomy and dominance. If they do not have these characteristics, then a system of challenges and rewards for such behaviour must be built into the curriculum as an integral part of the professionalization process.

This study was conducted to assess the personal preference characteristics of students entering a baccalaureate nursing program in Western Canada, in order to provide the faculty with data relevant to the program planning process during curriculum revision. This paper describes the personal preference profile of one class upon entry to, and exit from, a four year baccalaureate nursing program at the university.

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Literature Review

Numerous studies to determine particular profiles that correlated with specific professional groups have been reported in the literature. Studies in the sixties and seventies found that nursing students demonstrated fairly consistent characteristics that have contributed to the stereotypical image of the tender, motherly figure who did not challenge authority but who was devoted to her duty as the care-giver. With the increased educational and career opportunities for women since that time we expected that this image had changed. We predicted that the women's movement had encouraged more assertive traits in all young women, and hence, also in those choosing nursing as a career. The pattern of traits in which nurses consistently scored high were: affiliation, deference, endurance, intraception, nurturing, and order (Baily & Clause, 1969; Levitt, Lubin, & Zuckerman, 1962; Mauksch, 1977; Reece, 1961; Smith, 1968; Webb & Herman, 1978). Conversely nurses consistently scored low on: achievement, aggression, autonomy, change, dominance, exhibition, and heterosexuality (Baily & Clause, 1969; Levitt et al., 1962; Reece, 1961; Smith, 1968; Webb & Herman, 1978). Two traits, succorance and abasement, demonstrated an inconsistent pattern in the different studies. Kahn, in 1980, using a small sample size of 27 with a control of 13, found that nursing students were comparable to the college norm on the above listed characteristics, and that the traits unique to nursing students earlier identified no longer existed. Birdsell and Herman (1983) showed that women in medicine were significantly higher in endurance and understanding than women in nursing, and significantly lower than nursing students in play and social recognition. However, the nursing population did not differ on the latter two from the college norm in their study. The most popular measurement scale in all these studies was the *Edwards Personal Preference Schedule (EPPS)*, but study findings were similar irrespective of the measurement tools used to make these assessments (Lewis & Cooper, 1976).

Research questions

As part of curriculum revision activities faculty in a College of Nursing at a western Canadian University decided that it was important to ascertain the answers to the following questions:

What personality profiles do students entering our nursing program predominantly manifest?

Are personality profiles of nursing students different from personality profiles of the college norm?

Is there a significant change in personality profiles between entry to, and exit from, the educational program?

Is there a significant difference in personality profiles between students who complete the educational program in four years and those who discontinue or delay completion of the program?

Do personality characteristics predict high achievement in the program as measured by the overall four-year Grade Point Average (GPA)?

Method

A non-experimental pre-test, post-test design was used to collect data. The EPPS was administered to a class of first-year baccalaureate nursing students during their second week in the program and repeated with the same students during the final month of their fourth year.

The EPPS is a classic personality test, designed primarily as an instrument for research and counseling purposes to provide quick and convenient measures of 15 relatively independent normal personality variables. The split-half reliability coefficients for the 15 variables range from .60 to .87 with the majority better than .74. The test-retest reliability coefficients at a one-week interval for the separate variables range from .74 to .87. Validity has been established through acceptable correlations with other scales purporting to test similar personality characteristics (Edwards, 1959). The EPPS was chosen for its established reliability and validity, its control for social desirability of alternatives, its ease in administration and scoring, and the forced choice format. It was the most frequently used personality measure cited in the literature (Lewis & Cooper, 1976), and therefore enabled us to make direct comparisons with the findings from previous studies. Although the scale was developed some time ago the questions posed do not carry any obvious time related content and it continues to be considered a classic personality preference scale. (See Figure 1 for paraphrased definitions of the 15 variables in the EPPS.)

All criteria for ethical consideration were met; approval for the study was granted by the college ethics review committee. Participation in the study was voluntary.

Students recorded their responses on optic scan sheets which were scored by computer. Data analyses included t-test for independent and paired samples, Bonferroni correction for multiple t-tests, Pearson's correlation, and discriminant analyses. Level of significance was determined at $p < .05$. When the results were subjected to the Bonferroni correction (Marascuilo & McSweeney, 1977) to correct for the multiple t effect, the level of significance was raised to $p < .003$.

Results

Seventy-two (71 female, 1 male) out of a class of 80, first-year students entered the study, representing a 90% participation rate of the total class. Thirty-eight students completed both the pre- and post-questionnaire,

accounting for an 86% response rate of the 44 eligible students who completed the program in four years. Three students who did not participate in the pre-questionnaire responded to the post-questionnaire resulting in a total of 41 fourth-year questionnaire returns.

Personality Preference	
Variables	Definition
Achievement	To do one's best, to be successful
Deference	To respect authority, to conform to custom
Order	To have things planned and organized
Exhibition	To be the center of attention, say witty and clever things
Autonomy	To be independent and do what one wants, to be critical of those in authority
Affiliation	To make many friends, to be loyal to friends, and do things for them
Intracception	To analyze motives and feelings of self and others
Succorance	To seek help and encouragement from others and have others interested in one's own problems
Dominance	To be a leader, to influence the actions of others
Abasement	To feel inferior, timid, guilty, and give in rather than fight
Nurturing	To be kind, generous, sympathetic to those less fortunate, to have others confide in one about personal problems
Change	To do new and different things, to experiment
Endurance	To keep at a job until it is done, to persist
Heterosexuality	To be interested in the opposite sex and sexual themes
Aggression	To attack contrary points of view, to become angry, to tell others what one thinks of them

(Edwards, 1959)

Figure 1
Definitions of Personality Preference Characteristics
According to Edwards

Entry and exit comparison to college norms

Results indicated that the students in this study were similar to nursing students who participated in previous studies. To compare the personality profiles of the students to those of given college norms (Edwards, 1959), the t-test for independent samples was computed for each of 15 variables. Year 1 Nursing students scored significantly higher in succorance, nurturing, and endurance than the college norms. They scored significantly lower in dominance, change, and heterosexuality (Table 1). In year 4, the students still differed from the college norm, but to a lesser extent. They ranked significantly higher than the college norm on succorance and nurturing and significantly lower on dominance and deference (Table 2). Following the Bon-

ferroni correction, year 1 students scored significantly higher only on nurturing and significantly lower only on dominance and heterosexuality. In year 4 there were no personal preference categories that were significantly different from the college norm after the Bonferroni correction.

Table 1

Mean Scores on the EPPS of First Year Nursing Students Compared with the College Norm

Variable	Nursing student Mean (n=72)	College norm* Mean (n=749)	Nursing student S.D.	College norm S.D.#	t-value
Achievement	12.72	13.08	4.27	4.19	0.69
Deference	11.88	12.40	3.11	3.72	1.33
Order	11.04	10.24	3.76	4.37	1.70
Exhibition	14.07	14.28	3.36	3.65	0.50
Autonomy	11.43	12.29	4.14	4.34	1.67
Affiliation	18.08	17.40	4.50	4.07	1.24
Intracception	16.96	17.32	4.54	4.70	0.64
Succorance	14.38	12.53	4.55	4.42	3.30**
Dominance	11.17	14.18	4.54	4.60	5.38*** +
Abasement	15.99	15.11	4.62	4.94	1.54
Nurturing	19.67	16.42	4.60	4.41	5.75*** +
Change	16.07	17.20	4.23	4.87	2.13*
Endurance	14.39	12.63	4.15	5.19	3.36**
Heterosexuality	11.92	14.34	4.86	5.39	3.99*** +
Aggression	10.10	10.59	3.32	4.61	1.15

d.f.=71

* from Edwards Personal Preference Schedule Manual

* p<.05 level of significance

** p<.01 level of significance

*** p<.001 level of significance

+ p<.5 level of significance after Bonferroni correction

Profile changes from entry to exit

Discriminant analyses were conducted between year 1 (n=72) and year 4 (n=41) students to determine changes in personality profiles between entry to and exit from the program. Five variables accounted for 15% of the difference. These were heterosexuality, order, change, deference and endurance. Year 4 students showed increased need for heterosexuality, order and change, and decreased need for deference and endurance (Table 3).

Table 2***Mean Scores on the EPPS of Fourth Year Nursing Students Compared with the College Norm***

Variable	Nursing student Mean (n=72)	College norm Mean# (n=749)	Nursing student S.D.	College norm S.D.#	t-value
Achievement	12.27	13.08	4.16	4.19	1.21
Deference	10.56	12.40	3.38	3.72	3.38**
Order	11.54	10.24	4.96	4.37	1.65
Exhibition	13.95	14.28	3.32	3.65	0.62
Autonomy	11.80	12.29	4.03	4.34	0.76
Affiliation	16.51	17.40	4.44	4.07	1.25
Intraception	16.68	17.32	5.37	4.70	0.74
Succorance	14.27	12.53	4.92	4.42	2.22*
Dominance	12.00	14.18	4.59	4.60	2.96**
Abasement	15.05	15.11	5.12	4.94	0.07
Nurturing	18.29	16.42	4.17	4.41	2.79**
Change	17.32	17.20	4.42	4.87	0.17
Endurance	14.15	12.63	5.19	5.19	1.83
Heterosexuality	15.44	14.34	5.77	5.39	1.19
Aggression	10.10	10.12	4.18	4.61	0.70

d.f.=71

from Edwards Personal Preference Schedule Manual

* p<.05 level of significance

** p<.01 level of significance

*** p<.001 level of significance

Table 3***EPPS Predictor Variables that Differentiate the First Year Students from Fourth Year Students***

VARIABLE	Wilks-Lambda	Significance
Heterosexuality	.90278	.0008
Order	.88710	.0014
Change	.87247	.0019
Deference	.86119	.0027
Endurance	.85227	.0039

These five variables accounted for 15% of the variance between the two groups.

Thirty-eight of the 41 Year Four students who completed the post-test questionnaire were members of the entry sample. A paired t-test was computed with the scores of subjects who had responded to both the pre- and post-questionnaires. In this group there were three significant changes. The need for affiliation was lower in year 4 at .004 level of significance, the need for nurturing was also lower in year 4 at .02 level of significance. The need for heterosexuality was higher in year 4 at .001 level of significance (Table 4). After the Bonferroni correction the only significant difference was found in the preference for heterosexuality.

Table 4

Mean Scores on the EPPS of Paired Year 1 Nursing Students and Year 4 Nursing Students (n=38)

Variable	Year 1 Nursing Student Mean	Year 4 Nursing Student Mean	Year 1 Nursing Student S.D.	Year 4 Nursing Student S.D.	t-value
Achievement	12.32	12.24	3.62	4.17	0.12
Deference	11.50	10.63	3.28	3.47	1.18
Order	10.18	11.53	3.27	4.85	-1.66
Exhibition	14.39	13.89	3.50	3.31	0.65
Autonomy	11.53	11.55	4.04	3.95	-0.03
Affiliation	19.26	16.29	4.27	4.51	2.88**
Intraception	16.89	16.87	4.09	5.29	0.02
Succorance	14.55	14.39	4.81	4.73	0.15
Dominance	11.18	12.08	4.54	4.64	-0.87
Abasement	16.08	14.92	4.33	5.04	1.08
Nurturing	20.68	18.34	4.60	4.27	2.33*
Change	15.58	16.97	4.32	4.21	-1.43
Endurance	13.58	14.26	4.03	5.23	-0.73
Heterosexuality	12.16	15.66	4.77	5.73	-3.65*** +
Aggression	10.05	10.32	3.37	4.12	-0.29

d.f.=37

* p<.05 level of significance

** p<.01 level of significance

*** p<.001 level of significance

+ p<.05 level of significance after Bonferroni correction

Predictions of successful completion

Discriminant analyses were calculated between the entry scores of those students who completed the program in four years and those who withdrew or delayed completion of the program. Only two variables demonstrated an ability to separate the two groups accounting for 10% of the variance: these were affiliation and autonomy, accounting for 6% and 4% of the variance respectively. The students who remained in the program to complete it in four years scored higher on both these variables than those who left the program or delayed completion.

Pearson's correlation was calculated between cumulative GPA and each of the 15 EPPS variables to identify personality preferences that predicted high achievement in the program (Table 5). Results showed achievement and order had a significant positive correlation to high GPA; affiliation had a significant negative correlation. We recognized that correlations of .418 and .349 are really only moderate correlations and .263 is in fact a weak correlation. Multiple stepwise regression analyses with the GPA as the dependent variable were computed. The R^2 indicated that 25% of the variance was accounted for by the variables of achievement and order with all other variables non-significant (Table 6).

Table 5

Correlations Between Grade Point Average and First Year Scores on EPPS Variables (n=44)

Variables	Grade Point Average
Achievement	.418**
Deference	.208
Order	.349**
Exhibition	-.050
Autonomy	-.016
Affiliation	-.263*
Intraception	.118
Succorance	-.080
Dominance	.097
Abasement	-.231
Nurturing	-.196
Change	-.006
Endurance	.187
Heterosexuality	-.179
Aggression	-.192

* $p < .05$ level of significance; ** $p < .01$ level of significance

Table 6

Stepwise Multiple Regression Analysis Overall GPA and First Year Scores on 15 EPPS Variables (n=44)

Step Variable Entered	Dependent Variable: Grade Point Average				
	Standardize B	R ²	D.F.	F-Value	Significance
1 Achievement	.418313	.175	1	8.908	.005
			Residual 42		
			<i>Final Step</i>		
1 Achievement	.365605	.250	2	6.847	.003
2 Order	.279563		Residual 41		

Limitations

The major limitations of the study was the lack of a concurrent age and gender equivalent group for comparison at entry to the program and change over time during the university experience. The results were compared to the college norm data in the test manual (Edwards, 1959). The use of multiple t-test can result in the galloping-t effect; therefore, the data must be interpreted with that in mind. The use of the Bonferroni correction addressed this effect and resulted in fewer significant differences. The t-test was used because the 15 variables are considered to be relatively independent personality traits. Using the t-test also allowed for comparison with previous studies that used this analysis. In previous studies (Ventura, 1976) differences were found between students in diploma, associate degree, and baccalaureate nursing programs; therefore, it cannot be assumed that the findings in this study are indicative of nursing students in other programs.

A further limitation of the study was the large attrition of students from the entry sample, which might suggest a large attrition from the class or program. The four-year nursing program was known to be very rigorous, with certain academic terms considered to be particularly heavy. Consequently, students sometimes elected to reduce their study load by taking partial loads and extending their program by an additional year. The overall attrition rate from the program was consistently in the range of 20-22%, as experienced by other Canadian nursing programs. The revised curriculum addresses the problem of heavy credit years by introducing a prerequisite university year.

Discussion

This study suggests that some changes may have occurred in the nursing student population in relation to characteristics of achievement and autonomy. For the students surveyed in this study, although still scoring slightly lower than the college norm on these traits, the differences were not significant. Their low need for dominance was consistent with patterns from other studies, as was their high need for nurturing. The study group also demonstrated a relatively high need for succorance, a trait that received inconsistent scoring among nursing students in previous studies. A lower score on the heterosexuality scale was found in two previous studies (Figure 2).

Literature	1985 (Year 1)	1989 (Year 4)
<i>Nurses' characteristics higher than college norms</i>		
affiliation		
deference		
endurance	endurance	
intraception		
nurturing	nurturing	nurturing
order		
(abasement)		
(succorance)	succorance	succorance
<i>Nurses' characteristics lower than college norm</i>		
achievement		
aggression		
autonomy		
change	change	
dominance	dominance	dominance
exhibition		
heterosexuality	heterosexuality	

Figure 2
Comparison of Characteristic Scores for Nurses
as Reported in the Literature, Year 1, and Year 4

Two of the changes between year 1 and year 4, a lower need for affiliation and a higher score for heterosexuality, may reflect the particular timing of questionnaire administration. Two weeks into the university term everyone was ill at ease and looking for new friendships in order to survive. By the end of fourth year the students were confident within their friendship circle and many were in committed heterosexual relationships.

Lewis and Cooper (1976), in an exhaustive literature survey, looked at the feasibility of personality testing as a means of predicting the survival and success of "trainee nurses" in educational programs and their eventual professional longevity. They concluded that no clear directions emerged from the numerous and diverse studies conducted. Lewis (1980) persisted in her efforts to find some predictive value in personality profile testing, for purposes of recruitment and selection of student candidates for nursing to reduce attrition. Her study intimated that students who score high in intelligence, conscientiousness, perseverance, imagination, creativeness, social awareness, emotional maturity and experimentation are less likely to drop out of nursing studies. In our study the difference in personality preference between students who discontinued versus those who completed was minimal; only the needs for affiliation and autonomy were higher for those who graduated within four years. Needs for achievement and order were correlated with a high GPA. This suggests limited utility of EPPS as a predictor of success in nursing programs or as a tool to guide selection of student candidates.

The extent to which personality characteristics are influenced by the educational experience remains a debatable point. Bradham, Dalme and Thompson (1990) suggested that there may be minimal effect. Feldman and Crook (1984) concluded that curricula can be designed to influence "potentially changeable traits" (p.168). Even when trait changes occur by the end of an educational experience these may revert to entry score level after time has elapsed, as was found by Bruhn, Floyd and Bunce (1978). In our study the personality preferences appeared to be relatively enduring, and major shifts in preferences from entry to exit were not observed. The conservative statistics indicated that the students had assimilated into the college norm by the time of graduation. However, it is our conclusion that preferences that showed a difference from the college norm at both entry and exit points still merit attention when making curriculum decisions.

As educators we could pay additional heed to the students' need for succorance. Increased small group activities would promote student interaction and bonding through peer support. A readily accessible counselling service would provide an opportunity for students to discuss their personal problems and help build self-confidence, self-esteem, and independence. The need for succorance remained high at the time of graduation; as such, attention to this need will continue to be important for the retention of nurses in the profession. In the senior year students could be assigned to a preceptor, a practising nurse, to serve as mentor, exemplar, and supporter in the transition phase to practicing graduate nurse. From past experience we know that students frequently elect to seek initial employment in the setting where they have had their senior experience. When this occurs, the preceptor often serves as the initial support system to the neophyte employee.

The students' need for nurturing is consistent with previous studies and with personality traits identified as desirable by practicing nurses (Bradham et al., 1990). In curriculum planning the challenge lies in blending the traditional feminine nurturing role with the more masculine values of autonomy, scholarly research, and scientific problem solving (Partridge, 1978). We can ill afford to lose one trait for the sake of the other. As Newton (1981) postulates, in an ever increasing technical and bureaucratic health care system, "Only the nurse makes the system morally tolerable" (p.353). A strong case can be made for fostering and supporting the students' natural need to nurture, both during the educational program and in their future practice. Nurturing is a unique role function that appears to match personal preferences and public expectations of people choosing to come into Nursing. Nurturing may be fostered through increased emphasis on values clarification and on sensitivity to socio-cultural differences. Throughout the program students frequently need supportive guidance to progress from the "idealist state" of wanting to carry the patients' loads to one of supporting the patients as they learn or relearn strategies of independence.

The students entering the program scored above the college norm in endurance. This trait, in part, ensured success in their educational program and would be expected to continue to serve them well as graduates in their commitment to the profession. The decreased score in this preference upon program exit, as suggested by Bradham et al. (1990), may be a reflection of the long hours that have gone into the achievement of their goals.

The students' lower than college norm scores in dominance and change indicate there is a possibility of perpetuating the stereotyped nurse image in relation to submissiveness and traditional functions. This may be discouraging for visionary nurses. Conversely, it may result in nurses meeting the continued needs of society as proposed by Newton (1981) in her highly controversial paper. She stated that there is a need to maintain "the traditional ideal of the skilled and gentle care-giver, whose role in health care requires submission to authority" (Newton, 1981, p.348).

The profession seeks to convey an image and a reality of autonomy and leadership. Therefore, one of the aims of nursing educators at the baccalaureate level is to foster leadership skills and prepare nurses to be innovative in their approach to nursing situations (Peterson, 1983). To achieve this with individuals who have a low need for dominance and change requires specially designed learning activities, with repeated positive reinforcements to encourage development of these traits. Teaching strategies that contribute to these goals are: more independent study, including case studies; student presentations; and debate on issues where students learn to defend their point of view, listen to divergent opinions, and assume leadership with peers. In our program, teaching of cardio-pulmonary resuscitation is done almost

exclusively by students, giving them experience with leadership, organization and teaching. All of these strategies can be expected to contribute to increased self esteem, self reliance and leadership ability.

The students' low need for change has implications for a positive professional career where change is a daily reality. If nursing is to become a major force for change and reform in the health care system, educators must model and teach change process and identify the need for reform. Curriculum content should introduce the rationale for, and the process of, change. Faculty will have to demonstrate effective change. Learning experiences should provide for analysis of successful and unsuccessful change attempts.

Through recognition of natural tendencies and cultural stereotypes we believe it is possible to promote the development of personal characteristics in students that are consistent with the future needs of the nursing profession and the needs of our clients in health care.

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RÉSUMÉ

Caractéristiques des étudiants de baccalauréat lors de l'admission à l'université et en fin de programme

Cet article compare les résultats d'un inventaire de réponses au Edwards Personal Preference Schedule (EPPS) administré à des étudiants de baccalauréat lors de leur admission et à la fin du programme dans une université de l'Ouest du Canada. Le test T mesurant les échantillons indépendants révèle que les étudiants en première année de sciences infirmières obtiennent des scores nettement plus élevés que la moyenne universitaire sur le plan du maternage et nettement inférieurs sur le plan de la dominance et de l'hétérosexualité. En revanche, les étudiants de quatrième année ne s'écartent pas de la norme universitaire. Une analyse discriminante a démontré que les étudiants de quatrième année ont un plus grand besoin d'ordre, de changement et d'hétérosexualité et un moindre besoin de déférence et d'endurance que les étudiants de première année. Les corrélations de Pearson établies entre les moyennes pondérées cumulatives (MPC) et chacune des variables EPPS ont démontré qu'il existait une corrélation positive importante entre le succès et l'ordre d'une part et une MPC élevée d'autre part; par contre il existait une corrélation négative importante entre le MPC et l'affiliation. Dans les analyses de régression par degrés, le R² indiquait que 25 % de la variance était imputable aux variables d'accomplissement et d'ordre, les autres variables étant négligeables. Ces résultats soulèvent d'importantes questions sur le plan de la planification des expériences d'apprentissage des étudiants en vue de préparer les praticiens à satisfaire aux besoins futurs de notre société en matière de soins.