

Applicants to B.Sc.N., R.N., and R.P.N. Nursing Programs: Differences and Predictors

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Nous avons examiné 205 candidatures aux trois types de programmes en sciences infirmières (baccalauréat en sciences infirmières, programme d'accréditation et technique infirmière) offerts à Toronto, en Ontario. Les candidats étaient majoritairement des femmes blanches et célibataires, demeurant à une distance qui leur permet un accès aux institutions où elles ont postulé. Les candidats aux programmes de techniques infirmières ont tendance à être plus âgés que ceux inscrits au baccalauréat en sciences infirmières et au programme d'accréditation; ils sont mariés, ont au moins une personne à leur charge, proviennent de familles de cols bleus, ont quitté l'école depuis plus longtemps que les candidats des autres programmes et sont moins nombreux à soumettre une demande. On note que 11 fois plus de candidats ayant une ou plusieurs personne(s) à charge ont choisi un programme en technique infirmière plutôt qu'un programme d'accréditation. Le temps écoulé depuis l'obtention du diplôme d'études secondaires et la moyenne des notes obtenues indiquent, chez les candidats, une préférence pour un programme plutôt qu'un autre. Bien que les diplômés de 1992 aient été conscients des défis auxquels est confrontée la profession infirmière, la plupart des candidats s'attendaient encore à décrocher, à la fin de leurs études, un emploi à temps plein en soins intensifs. Ces données constituent un outil de référence important, permettant de comparer l'ensemble des candidatures actuelles et futures en ce qui a trait aux caractéristiques socio-démographiques et aux attentes liées à un choix de carrière en sciences infirmières.

We surveyed 205 applicants to three types of nursing programs (B.Sc.N., diploma-R.N., and diploma-R.N.A.) offered in Toronto, Ontario. Applicants were predominately white, unmarried women living within commuting distance of the institutions to which they applied. Applicants to practical nursing programs tended to be older than applicants to B.Sc.N. and diploma-R.N. programs, be married, have at least one dependant, come from blue-collar families, be out of school longer, and submit fewer applications. Applicants with dependants were 11 times more likely to choose R.P.N. over R.N. programs. Recency of graduation and high school average were predictive of choosing B.Sc.N. over R.N. programs. While this 1992 cohort had some appreciation for the challenges facing the nursing profession, most applicants still expected to secure full-time employment in acute care post-graduation. The data provide an important benchmark for comparing current and future cohorts of applicants with respect to socio-demographic characteristics and expectations of nursing as a career choice.

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Considering the changing employment prospects of Canadian nurses (Hiscott, 1994), we need to determine whether the characteristics and expectations of the applicants are also changing. The majority of studies on expectations of nursing as a profession have used samples from among high school students (Grossman & Northrop, 1993) or nursing students (Wertenberger, Gushuliak, & Williams, 1993). Studies with applicants have been limited for the most part to one type of program (Hicks & Lobin, 1993; Treece, 1967). The only study among applicants to different types of programs (baccalaureate, associate degree, and diploma) was conducted 15 years before our survey. Nash (1976) mailed a questionnaire to more than 2,000 applicants to 20 nursing schools in the United States, soliciting information about the application process, socio-demographic characteristics, education and work history, and motivations and expectations. Only descriptive findings were reported, and factors influencing exclusivity of applications (i.e., to only one type of nursing program) were not addressed. Neither Nash's study nor any other investigation has compared the characteristics of applicants to practical nursing programs with those of applicants to other types of nursing programs. The purpose of this study was to examine predictors of who applies to different types of Canadian nursing programs.

Method

A survey of applicants to three different programs offered in Toronto was used to compare the characteristics of persons seeking a university baccalaureate degree in nursing (B.Sc.N.), a diploma leading to registered nursing status (R.N.), and a diploma leading to registered practical nursing status (R.P.N.) — the latter two programs being offered at the same community college. The registrar's offices of both the university and the community college agreed to stratify the fall 1992 successful applicants (666 in total) into those who accepted and those who declined admission, allowing us to sample proportionately from each program and category.

The content of the questionnaire was similar to that of Nash's (1981) questionnaire, and we used a branching format so that a single questionnaire could be used for all three groups. The two registrar's offices supplied identification numbers for applicants according to our random selection and stratification criteria. Each mailing — initial questionnaire, reminder postcard at one week, and second questionnaire at two weeks — was made simultaneously at the two institutions.

The response rate was 53% overall: 72% among the B.Sc.N. group and 35% among the R.P.N. group. The sample for analysis ($n=205$) consisted of 99 applicants to B.Sc.N., 70 to R.N., and 36 to R.P.N. programs. By cross checking each applicant's questionnaire data against the registrar's classification, we identified three homogeneous "exclusive" groups — 89 people who applied *only* to B.Sc.N. programs, 55 who applied *only* to R.N. programs, and 30 who applied *only* to R.P.N. programs. ANOVA was used to compare the three groups on the continuous variable of age; then Tukey B was used to pinpoint significant group differences. Chi square analysis was used for categorical variables. Logistic regression was used to identify the best predictors of application type.

Findings

The vast majority of successful applicants (92%) lived within 60 kilometres of the institution to which they had applied for admission. Slightly over a third (35%) of the entire sample applied to only one nursing program — this tendency being most common among applicants to the R.N.A. program (70%, compared with 33% for R.N. applicants and 23% for B.Sc.N. applicants); B.Sc.N. applicants were far more likely to apply to other nursing programs (57% of these applied to more than three programs). About a quarter of the total sample — similarly apportioned among the three groups — had also submitted applications to non-nursing programs; the majority of general science and medical school applications (71%) came from the B.Sc.N. group.

Table 1 shows the characteristics of the entire sample and each of the exclusive applicant groups. The sample ranged in age from 18 to 57 years (mean=25.7, SD=8.4). Members of the R.P.N. group were significantly older than members of the other two groups and were more likely to be married (especially compared with members of the B.Sc.N. group). More than a quarter ($n=58$) of the sample had children, while eight had an adult dependant. The proportion of the R.P.N. group with dependants (either children or adults) was much higher than for the other two groups.

Although the sample was predominately female and Caucasian, the R.N. group was found to have a stronger representation of males and visible minorities. Concerning the specific question on belonging to a "visible minority (i.e., persons from various racial backgrounds, with disabilities, etc.)," the most frequent responses were Oriental ($n=20$), East Indian ($n=4$), and Native Indian ($n=2$). No applicants indicated that

they had a disability. Only 10% checked the "prefer not to answer" option.

All but four applicants to the R.P.N. program had completed high school. For 61% of the sample, high school was the highest level of education achieved. The majority (84%) were educated in the province of application (Ontario), and 57% had graduated from high school in the previous two years. About 42% reported high school leaving averages of 80% or higher; no one was below 60%. The three groups differed significantly with respect to both high school average and recency of graduation from last educational program completed. Eighteen subjects (9% of the total sample) had undergraduate degrees in general arts or science. Almost a quarter (48) had a diploma, 29 of these in nursing. Twenty-three B.Sc.N. applicants had a diploma at the R.N. level; five R.N. applicants had R.P.N. qualifications; and one R.P.N. applicant had a diploma in nursing.

A greater percentage of the R.P.N. group had either fathers or mothers who had not completed high school (39% and 46%, respectively), compared with the R.N. (30% and 29%) and B.Sc.N. (23% and 24%) groups. Mothers of the R.P.N. applicants were more likely to be homemakers (33%), compared with the R.N. (28%) and B.Sc.N. (20%) groups. Parental occupations were collapsed into blue-collar versus white-collar. A significant group difference emerged concerning mother's occupation (see Table 1).

From a list of 17 options, subjects were asked to check all the reasons they were considering nursing as a career. The most frequently checked statements by the sample as a whole were: "helping profession" (81%), "career opportunities" (63%), "interest in sciences" (56%), "job satisfaction" (53%), "reputable profession" (51%), "financial security" (49%), "job security" (48%), "advancement opportunities" (47%), "challenge" (41%), and "always wanted to be a nurse" (38%). Only one statement — "always wanted to be a nurse" — yielded a significant difference among the three groups (see Table 1).

Acute care ranked as the most desirable area in which to work post-graduation (52%); public health was a distant second (20%). Few respondents selected medical clinics (12%), home nursing (8%), or chronic care (5%). While all groups expected to work primarily in acute care, home nursing was chosen by more R.P.N. (27%) than R.N. or B.Sc.N. applicants.

Table 1 *Characteristics of Total Sample and Exclusive Applicant Groups*

	Total Sample <i>n</i> = 205	B.Sc.N. <i>n</i> = 89	R.N. <i>n</i> = 55	R.P.N. <i>n</i> = 30	Significance
Age (Mean)	25.7	23.6	26.7	31.9	$F = 10.76^{***}$
Never married	72%	82%	69%	41%	$\chi^2 = 22.8^{***}$
Dependants	32%	16%	22%	68%	$\chi^2 = 28.3^{***}$
Female	92%	94%	68%	80%	$\chi^2 = 2.16$
Visible minority	21%	20%	27%	12%	$\chi^2 = 2.70$
Completed high school	98%	100%	100%	86%	$\chi^2 = .51$
High school average >80	42%	54%	30%	27%	$\chi^2 = 11.50^{**}$
Graduated last two years	57%	73%	53%	17%	$\chi^2 = 26.9^{***}$
White-collar mother	48%	66%	48%	30%	$\chi^2 = 10.50^{**}$
White-collar father	49%	62%	47%	39%	$\chi^2 = 4.67$
Always wanted to be a nurse	38%	24%	47%	48%	$\chi^2 = 10.90^{**}$
Prefer full-time	82%	80%	91%	73%	$\chi^2 = 3.80$
Prefer acute-care nursing	52%	51%	38%	41%	$\chi^2 = 1.31$
10-Year Expectations					
Bedside nursing	21%	15%	32%	21%	$\chi^2 = 5.90^*$
Nursing administration	21%	30%	13%	3%	$\chi^2 = 11.50^{**}$
Teaching nursing	18%	22%	13%	10%	$\chi^2 = 3.20$
Home nursing	9%	4%	7%	24%	$\chi^2 = 6.30^*$
* $p < .05$; ** $p < .01$; *** $p < .001$					

Most (84%) did not expect newly graduated nurses to have a choice of working straight days versus shifts, but most (79%) did expect to have the option of working full time or part time. The majority (82%) indicated a preference for full-time work. Over half the sample (59%) expressed a preference for work in the metropolitan Toronto area, but the same percentage (59%) indicated that they would relocate (26% answered "possibly"); the most desirable areas for relocation were found to be British Columbia (54%), Southern Ontario (49%), and the U.S.A. (42%). The three groups did not differ in their preferences for full-time versus part-time work, steady day work versus shifts, or location.

When the respondents were asked where they pictured themselves 10 years hence, bedside nursing and administrative work were each chosen by 21%. As shown in Table 1, B.Sc.N. applicants were more likely to see themselves as future administrators and teachers, R.N. applicants as bedside nurses, and R.P.N. applicants as either bedside or home nurses. Similar proportions of each group (13%–15%) saw themselves in public health. Financial cutbacks (47%), job availability / security (26%), increased professionalism (26%), and changes in health care (24%) were identified most frequently by all three groups as the factors that would influence nursing in the next decade.

A separate profile was created of the 16 males in the sample. They were found to be slightly older than the sample average (mean age=28, $SD=7$); most were unmarried (80%) and did not have dependants (92%). For 59%, high school was the highest level of education completed; 62% had graduated more than two years previously; 31% had a high school leaving average above 80%. Only 32% of the men selected acute care as their first choice post-graduation; 21% chose public health; none selected chronic care or home nursing. The majority of males saw themselves 10 years hence in administration (43%) or teaching (14%). Fifty percent had applied exclusively to diploma, 29% to B.Sc.N., and 21% to practical programs.

We then produced a separate profile of the 23 R.N.s in the B.Sc.N. applicant group. All were female; 50% had dependants. Only five (22%) had a high school average over 80%, and 21 (91%) had graduated before 1990. These findings indicate that the differences found between B.Sc.N. and R.N. applicants would have been even greater if the former category had been restricted to non-R.N. applicants.

Logistic regression analysis was used to identify the best predictors of application type. The data for the 29 applicants who held nursing diplomas were removed for these analyses. Model building consisted of selecting variables significant in univariate analyses, grouping theoretically related variables (demographic, attitudinal, and parental), and then developing a "model" to best fit the data following systematic removal of variables and analysis of changes in scale deviance. Gender could not be reliably modelled, due to the small number of males. An odds ratio is interpreted as the probability of an "event" occurring — namely, applying exclusively to one type of program.

As can be seen in Table 2, three main effects emerged for the first model — B.Sc.N. versus R.N. Those who endorsed the statement "always wanted to be a nurse" were twice as likely to choose the R.N. over the B.Sc.N. program. Conversely, having recently graduated

(within the previous two years), and/or having a high school average over 80%, was associated with a greater likelihood of choosing a B.Sc.N. over an R.N. program. One main effect emerged for the second model: applicants with at least one dependant (child or adult) were 11 times more likely to choose an R.P.N. over an R.N. program.

While B.Sc.N. and R.P.N. applicants differed significantly on three variables — number of dependants, graduation year, and “always wanted to be a nurse” — convergence could not be obtained with 25 iterations. However, when applicants with previous diplomas were included, the model generated showed that those with dependants and those checking the statement “always wanted to be a nurse” were eight times more likely to choose practical over baccalaureate training.

Table 2 <i>Logistic Models: Predictors of Type of Nursing Program Applications</i>		
B.Sc.N. versus Diploma (R.N.)		
Variable	Parameter Estimate	Odds Ratio
Graduation recency	-3.2909	0.037
High school average	-1.8352	0.160
Always wanted to be a nurse	0.7920	2.208
Overall model	$p = 0.0001$	
Diploma (R.N.) versus (R.P.N.)		
Variable	Parameter Estimate	Odds Ratio
Dependants	2.4136	11.174

Discussion and Conclusions

Even though Nash’s (1976) applicant survey was conducted 15 years previously in the United States, our 1992 Canadian cohort showed some striking similarities with it in socio-demographic characteristics and the tendency to apply to schools within commuting distance. However, our sample submitted more applications, and its three groups were more consistent in nursing application patterns (95%, 85%, and 83% applied exclusively to, respectively, a B.Sc.N., R.N., and R.P.N. program).

Like other studies (Nash, 1976; Villeneuve, 1994; Wertenberger et al., 1993), our investigation revealed that nursing programs attract predominantly unmarried, white, young females. While we expected to

find a greater proportion of minority applicants in the metropolitan, multicultural area in which the study was conducted, it is possible that such individuals simply did not respond to our survey. It is also plausible that Canadian nursing-education programs are still failing to attract men and visible minorities proportional to the representation of these groups in society.

Clearly, in 1992, when our study was conducted, baccalaureate and diploma programs were attracting exclusive applicants. Applicants to R.P.N. programs were found to be older; more likely to be married, out of school longer, and have lower high school leaving averages; and significantly more likely to come from blue-collar families. Most striking was the finding that applicants with dependants were eight times and 11 times more likely than baccalaureate and R.N. applicants, respectively, to apply for admission to practical nursing programs. It is valuable to have this 1992 cohort — before major health-care reforms occurred — as a benchmark against which to compare characteristics of current and future applicants to nursing programs across Canada.

Even in 1992, the majority of our sample had some appreciation of the challenges facing the nursing profession. Nonetheless, a substantial proportion said they chose nursing for its financial and job security and its advancement opportunities. The majority expected to be able to work full time, in an acute-care setting close to home. Given the realities of nursing today (Armstrong, Choiniere, & Day, 1993; Hiscott, 1994), our applicant cohort now in the workplace may be experiencing a great deal of disillusionment. Only the older practical nursing applicants who had families seemed willing to accept part-time and home-nursing positions. Post-secondary institutions, and the profession itself, need to undertake proactive marketing strategies targeted to different applicant groups. Changing employment opportunities must be considered; otherwise the applicant pool will decline. As hospitals down-size and the focus shifts from acute-care nursing to community nursing, the need for flexibility in employment status has become paramount (Hiscott).

Long-range human-resources planning must make use of longitudinal studies to track different cohorts of applicants from student status through to graduation, nursing registration, and employment. Application forms must be standardized across educational institutions, and must elicit data on minority status and expectations. The profession itself is likely to change rapidly and dramatically; we need to know whether applicant characteristics and expectations change concurrently.

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