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## HOW PREDICTIVE IS SELECTION TEST AS ADMISSION CRITERIA TO ACADEMIC SUCCESS OF BACCALAUREATE NURSING PROGRAM?

**Kiran Taneja || Vice Principal**  
**Amity College of Nursing**  
**Amity University Haryana**

### ABSTRACT

A descriptive correlational survey to investigate the relationship between selection test scores and academic performance of B.Sc (Hons) Nursing students in a selected College of

Nursing was undertaken for the partial fulfilment of the requirement for the degree of Master of Nursing at Rajkumari Amrit Kaur College of Nursing (University of Delhi), New Delhi. The objectives of the study were: To determine the relationship between marks obtained in selection test and class xii marks; Total internal assessment marks in part I, II, III, IV and Grand Total; Total university examination marks for part I, II, III, IV and Grand Total; Marks obtained in Physical sciences, Biological sciences, Social sciences and Nursing sciences; and Total marks obtained in all Theory papers and all Practical.. To find out the effect of Selection test scores on Academic achievement scores in B.Sc (Hons) Nursing students. The study was conducted on 122 B.Sc (Hons) Nursing students based on the records available. A structured proforma was developed for data collection. The major findings revealed that there is significant positive relationship between selection test scores and all the 24 variables. All variables entered in the regression equation and contributed significantly to Selection test scores.

**KEYWORDS :** Admission Criteria, Selection Test, Internal Assessment, University

### INTRODUCTION

The role of nurses in the specialized care areas and changing health care settings, Requires effective and efficient use of limited nursing education resources, for the development of nursing manpower. Nursing needs broad based quality education, both in theory and practice. Nurses must acquire specialized skills, knowledge and a work culture with right attitude and values. The selection of suitable candidates for graduate nursing is the primary task of nurse educators. They need to attract applicants, who possess an attitude for caring. Effective selection criteria benefits students, nurse educators, counsellors, curriculum planners and the society. Proper selection of candidates is vital to maintain an ever higher calibre of nursing students. It is the responsibility of nurse educators to make sure that good students are not left out at the selection stage itself.

Nursing demands highly motivated candidates with appropriate personal qualities. Nursing programs are demanding academically, both in terms of breadth and depth of the learning material required to be covered. Thus the selection process must be based on an appropriate recruitment criteria to ensure that candidates with high academic standards take up this vocation. There is competition for admission in reputed colleges and universities. In the past, the percentage of marks obtained in the qualifying examination used to be the only index for admission in nursing courses. The task of selecting students became more and more difficult, as there is no uniformity in the curriculum in different boards and universities throughout the country.

To maintain high standards of achievement, an attempt is made to admit only those applicants who are likely to achieve academic success. Selection tests help in making entrance decisions for the most suitable candidates. They evaluate the candidates, "most likely to stay and succeed" in a program once admitted. Attrition is an important issue, as the place occupied by a student unable or unwilling to complete the program, is denied to another applicant, who is more likely to succeed. The reasons for attrition could be scholastic failure, transfer to MBBS, transfer to other nursing programs, or other branches of study, language problem or financial difficulty. This calls for a judicious assessment or better selection procedures for new entrants, to increase the cost effectiveness of nurse manpower production. Predicting students' academic success is a critical issue in Nursing. There is an urgent need to improve the prediction of academic achievement in nursing education. Research in nursing education has been directed towards the development of criteria predictive of academic success by other countries: Sharp (1984), Yocom and Scherubel (1985), Whitley and Chadwick (1986) and Horns, et al (1991). So far no attempt has been made to develop

criteria predicting academic success in nursing in India. Some institutions consider 10+2 results as the merit, others use a combination of selection test, merit in qualifying examination and interview and a few use only entrance test. There is no research evidence in India to show relationship between entrance test in nursing and academic achievement. Hence, the investigator felt the strong need for conducting this study.

### 2. Literature Survey

Horns, O' Sullivan and Goodman (1991) suggested that successful performance during the student's academic career contributes to his success on the National Council for Licensure Examination for Registered Nurses (NCLEX-RN). The purpose of this study was to determine predictors of success on NCLEX-RN, Pre-admission and year 2, 3, and 4 variables in relation to NCLEX-RN scores. Data was obtained retrospectively from records of 408 baccalaureate nursing students. Pre-admission variables were age, sex, race, and admission grade point average (GPA). Year 2 variables were numerical grades for the first 2 clinical nursing courses. Year 3 variables were numerical grades for clinical courses in mental health, adult health and maternal child nursing. Year 4 variables were numerical grades in 2 senior clinical courses, percentile rank on National League for Nursing Achievement Test (NLN) comprehensive examination and graduate GPA. These predictors could be used to design early interventions for students performing poorly and at risk of failing the NCLEX-RN.

Jenks, J et al (1989) conducted a collaborative study for identifying predictors and optimal timing for intervention of students at risk. The convenient sample consisted of 407 graduates of an integrated, upper division, baccalaureate nursing program. Pre matriculation: total lower division GPA, science GPA, age, sex and type of lower division college; junior year: 3 nursing theory course grades and pregraduation variables: 3 senior year nursing theory course grades were analyzed for predictive value. The study revealed that nursing theory courses at the junior and senior year strongly correlated with NCLEX performance. The investigators concluded that students at high risk can be identified at the end of the junior year, so that enrichment and support programs can be introduced at that time.

A study was conducted by Boyle (1986) on 145 minority students in a baccalaureate nursing program. Predictor variables used were: Entering Grade Point Average (ENTGPA), American College Test Assessment (ACT), High School Rank (HSRANK), high School GPA (HSGPA), Number of college credit hours prior to program admission, age at admission and an index of applicant motivation. Final GPA, program completion, and State Board Test Pool

Examination (SBTPE) performance were used as indicators of success. The findings of the study revealed that ACT was the strongest, most consistent predictor of SBTPE performance and final GPA for all minorities. ENTGPA provided the only discrimination between graduates and dropouts.

An ex-post facto study was done on 297 subjects, first-time writers of the NCLEX-RN by Felts (1986). The researcher concludes that the ACT composite score is the best admission criteria predictor for success in nursing courses. Performance in college courses predicts pass/fail status on the NCLEX-RN with greater accuracy than does performance in high school. Grades in the courses in the biological sciences, social sciences and the humanities differentiate those students who pass and those who fail in the NCLEX-RN. The study recommends strengthening of the humanities dimension of nursing education in developing human potential. Woodham and Taube (1986) carried out an ex-post facto correlational study to ascertain the relationship of selected admission criteria and performance in the integrated nursing major courses of an associate degree program, as predictors for performance on the NCLEX-RN. A significant positive relationship at .01 with NCLEX was individually demonstrated with Scholastic Aptitude Test (SAT) verbal scores. Age at graduation in the program, high school class rank percentile and SAT math scores were not significant. Multivariate regressions were used to predict NCLEX scores. The predicted scores correlated significantly with the actual scores.

### 3. Methodology

A Descriptive correlational survey approach was adopted. Predictive studies depend on retrospective data. The selection test score was the predictor variable and the scores achieved during the course of study of B.Sc (Hons.) Nursing were considered as the criterion variables. The study was conducted in Rajkumari Amrit Kaur College of Nursing, New Delhi. The college admitted 45 students in B.Sc (Hons) Nursing course each academic year in the month of July.

The population consisted of all students of baccalaureate nursing program enrolled each year from 1987 to 1989. During the 3 years, which covered the study, the number of students admitted were: 43, 44 and 49 in the years 1987, 1988 and 1989 respectively. The total student population graduated in 1991 or expected to graduate in 1992 and 1993 formed the cohort group for the study. The students' records were utilized for the study. Out of 136 students admitted, 11 students had dropped out because of admission to M.B.B.S, transfer to other nursing programs or other branches of study, one student had expired, one student was reappear from 1986 batch, as selection test was not held till 1986 and one foreign student, excluded from selection test.

The sample consisted of the records of 122 students. All records retained in the study, had complete data. Selection test as a basis for admission to B.Sc (Hons) Nursing was initiated in 1987. The period covered by the study was during the academic years of 1987 to 1991, 1998 to 1992 and 1989 to 1993. The records of students admitted in 1987 were assigned code number 101 onwards, admitted in 1988 were assigned 201 onwards and those admitted in 1989 were given code number 301 onwards.

**The tool:** A structured proforma was developed for collecting data from the records. It consisted of 78 items under the following headings: Background information with batch, Code number and age, Class XII marks and selection test scores, Internal assessment marks obtained in 14 theory papers, University examination marks obtained in 14 theory papers, Internal assessment marks obtained in 7 practical, University examination marks obtained in 7 practicals,

College exam I, II and field work, Total internal assessment marks in part I, II, III, IV and Grand total of internal assessment marks, Total university marks in part I, II, III, IV and Grand total of university marks, Number failed in theory paper and promoted, Number failed in theory papers and not promoted, Number failed in practical and not promoted, Internal and university examination marks obtained in physical sciences, Internal and university examination marks obtained in biological sciences, Internal and university examination marks obtained in social sciences, Internal and university examination marks obtained in nursing subjects, Internal and university examination marks obtained in all theory papers, including two college examinations, Internal and university examination marks obtained in all practicals including field work and Remarks.

### 4. Results and Discussion

The mean and standard deviation of class XII scores were: 63.93, 6.87. This revealed that sample was heterogenous at the time of admission. The highest mean was observed in Part I internal assessment marks (77.39) and lowest in Part II university examination marks (65.36). In the subject sub group areas, the highest mean was recorded in internal assessment marks of physical sciences (78.83) and lowest in internal assessment of social sciences. Means of both in internal and university examination in total practicals was the maximum (73.71 and 71.92) respectively. Means of both internal and university examination marks were the least in total theory papers (67.81 and 65.43) respectively. 20% students had scored between 70 and 80 % marks in class XII examination, 57% had obtained between 60 and 70 % and the remaining 23% had scored between 50 and 60 % marks. 7% students had scored between 70 and 80% in selection test, 36% scored between 60 and 70%, 53% between 50 and 60% and the remaining 4%, belonging to reserved category obtained between 40 and 49%. As per cumulative performance or grand total marks obtained at the end of the fourth year of study, 35% had scored between 70 and 80 % and 65% obtained between 60 and 70% marks in grand total university examination marks.

The data analysis also included correlations and multiple regression with selection test scores and criterion variables. 24 variables i.e. academic achievement scores, during the four years in various subjects, were chosen as criterion variables, and selection test scores, was predictor variable. 10 Variables reflected a significant positive relationship with selection test scores. These variables were: Class XII marks, University examination marks of Part I and Part III, Internal assessment marks of Part IV, University examination marks of physical sciences, Internal assessment marks of biological sciences, Internal assessment marks and university examination marks of social sciences, University examination marks of all theory papers and University examination marks of Grand total. The findings indicated that there is no significant relationship between selection test scores and internal assessment marks of Part I, II, III, and Grand total, Total theory papers and practical's, and University examination marks of part II, Biological sciences, Nursing subjects and all Practical's. Students who had higher selection test scores, shall score higher marks in Grand total university examination marks.

Regression analysis was computed with all 24 independent variables, multiple R and  $R^2$  to find correlation between selection test scores and 24 groups of performance scores. Multiple regression analysis was done by the SPSS, to establish the predictive validity of the selection test. Multiple correlation coefficient (Multiple R), Coefficient of multiple determination ( $R^2$ ) and its significance (F-ratio) were computed for the study. University marks of Social sciences was the first variable to be stepped into regression analysis. The last variable to enter was University examination marks of all



practical's. All  $R^2$  values of 24 variables are significant at .0000 level. Multiple regression analysis showed that all 24 variables had contributed significantly to selection test scores.

To conclude, all the 24 variables entered in regression equation, indicating that all of them contributed significantly to selection test scores. There is significant positive relationship between selection test scores and the academic achievement scores of B.Sc (Hons) nursing students.

## 5. Future Scope

The implications from this study are of vital importance to health planners, nurse educators, counsellors and administrators. There is need for a standardized selection test for B.Sc (Hons) Nursing course. It should also include the aptitude and attitude of the candidates towards caring of the sick. Counselling services at the preadmission stage, are essential to ensure optimum utilization of institutional facilities and also to reduce dropouts and failures. If a student drops out in the first year, the seat remains vacant for four years. Class XII examination marks may also be included for determining the selection basis for admission. Complete records of students need to be maintained, in case of dropouts a formal exit interview to know the reasons for quitting the course. This would provide valuable data for improving the academic and welfare services of the institution.

MULTIPLE REGRESSION ANALYSIS BETWEEN SELECTION TEST SCORES AND ACADEMIC PERFORMANCE SCORES (1987 to 1989)				
Variables		Multiple R	R <sup>2</sup>	F-RATIO
Social Sc.	University	0.4704	0.2213	23.0227
Part IV	Internal	0.5574	0.3107	18.0344
Part I	University	0.5968	0.3562	14.5703
Physical Sc.	Internal	0.6347	0.4029	13.1561
Age		0.6573	0.4320	11.7123
Part IV	Co I & Co II	0.6677	0.4459	10.1916
Social Sc.	Internal	0.6811	0.4639	9.2734
Part II	University	0.6966	0.4853	8.7212
G. Total	University	0.7065	0.4992	8.0846
Class XII Scores		0.7120	0.5070	7.4045
Nursing Sub.	University	0.7161	0.5128	6.7926
Biological Sc.	University	0.7224	0.5219	6.3677
Part III	University	0.7326	0.5367	6.1484
Practicals	Internal	0.7396	0.5469	5.8637
Nursing Sub.	Internal	0.7492	0.5613	5.7137
Theory papers	Internal	0.7609	0.5790	5.6726
G. Total	Internal	0.7692	0.5916	5.5389
Theory papers	University	0.7817	0.6101	5.5860
Part III	Internal	0.7870	0.6193	5.3045
Biological Sc.	Internal	0.7905	0.6249	5.1642
Physical Sc.	University	0.7923	0.6278	4.8999
Part I	Internal	0.7951	0.6321	4.6858
Part II	Internal	0.7970	0.6352	4.4669
Practicals	University	0.7970	0.6352	4.2079

\* All values were significant at .0000 level.

**Table 1: Multiple Regression Analysis between Selection Test Scores and Academic Performance Scores**

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