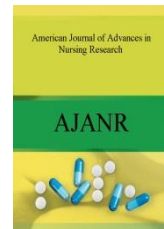




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### A STUDY TO ASSESS THE RELATIONSHIP BETWEEN NURSING APTITUDE TEST AND ACADEMIC PERFORMANCE OF NURSING STUDENTS IN A SELECTED NURSING INSTITUTE OF NEW DELHI

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#### ABSTRACT

This is a quantitative research aimed to assess the relationship between nursing aptitude test and academic performance of nursing students in a selected nursing institute of New Delhi. The purpose of this research was to find out the significant association between nursing aptitude test and academic performance including its benefit to the students. Objectives of the study are to evaluate the nursing aptitude score of students during GNM entrance exams, to evaluate the academic performance of GNM students, to assess the relationship between aptitude test and academic performance, to assess the relationship between nursing aptitude test of GNM students with selected demographic variables like age, stream and medium of instruction in school. A semi-experimental research designed was used, which was conducted on 46 GNM IInd year student nurses studying at Apollo School of Nursing of New Delhi, and subjects were selected by enumerative sampling technique. It was found that there is a positive correlation between the nursing aptitude test and the academic performance of the nursing students.

#### INTRODUCTION

‘Nursing’ is a set of skillful actions, performed on an individual or group of people, sick or healthy, to prevent illness, promote or maintain health. It propagates individualized, comprehensive and culturally sensitive care to enable the needy to regain knowledge, will and strength. It creates a transformational social milieu, in which inabilities to care for self are substituted by the nurse until one regains considerable ability to perform

them independently. During such caring processes, nurses are expected to demonstrate unique interpersonal skills (art of nursing) and competence to care [1].

Student nurses need to be responsible and committed to task assigned to them. A candidate with ability to take right decisions at a situation will be able to develop into knowledgeable professional with the finest set of patient care skills. An effective admission criterion may help to select a candidate who is appropriate for the profession of Nursing. Studies have shown that better academic performance in the junior college may affect the undergraduate performance [2].

Standardized tests are helpful for selecting

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students who are likely to succeed with consistently high grades from year to year. Another reason for their use is the predictive validity of the aptitude and achievement tests can predict students' success in the university [3]. But in contradiction to this a study by Zwick (2007) argued that although standardized tests increase universities' prediction abilities only slightly, they can be worthwhile, especially for universities that are unable to conduct interviews or review detailed documents for all applicants [4].

In many universities aptitude and achievement tests have been adopted because admitting students who will succeed academically at an institution is an important issue for universities [5].

Nurses seek and apply knowledge from basic, behavioral, medical and applied sciences including alternative systems of medicine, environment, epidemiology and statistics (science of nursing). Nursing is a useful and helpful profession. Nurses are the largest, cost effective health care provider workforce of any health care industry with potentials to influence the health status of individuals, community or a nation. However the nurse manpower scenario across the globe is unsatisfactory. It is also estimated that around 40% of nurses would leave health employment in the next decade. So, in order to avoid this issue it is necessary to create an eligibility criteria for the upcoming nursing graduates before the admission.

## NEED OF THE STUDY

A need was felt for identifying potential candidates during selection of student nurses to establish selection criteria at the time of admission and also determine the relationship between the nursing aptitude test and academic performance of student nurse.

The performance of medical students during their pre-admission test in first trimester showed that the average grades, admission test scores, interview ratings and system of education, revealed a significant relationship between pre-admission grades, admission test scores, and subject test scores in MBBS first trimester examination. A relation was also found between the system of education and the academic ability of the students. The study concluded that the system of education from which the student received his or her previous education has an effect on certain basic science related courses [6].

Research studies on predictive ability of admission criteria examined that there are various academic and non-academic factors which can affect the academic performance of students such as college and high school grade average, scores of different aptitude tests and certain demographic characteristics such as age, gender, ethnicity, marital status, residential background

and previous work place experience. The design of the study was retrospective correlational and 128 students were selected. Evidence suggests that certain academic and non-academic variables plays a very important role in prediction of the academic performance of the students and can thus be rationalize for their use in the admission process [7,8].

Study by Newton and Moore 2009 reported TEAS (Test of Essential Academic Skills) (math, science, reading and English aptitude) was able to predict Development and Psychometric Evaluation and first semester nursing program success than GPA [grade point average] and it concluded that early academic achievement depends on admitting academically strong candidates into the program [9].

Assessment of aptitude had been an area of interest and investigation of many researchers in the past. Several aptitude tests namely Scholastic Aptitude, Clerical aptitude and Teaching aptitude are available and are in use in India and abroad. Purpose of this study is to have clear idea about this aptitude test.

From these reviews we concluded that there is certain selective criteria which will have an effective impact of Nursing Aptitude Test on academic performance .So we decided to work on this project.

## HYPOTHESIS

### Research hypothesis

**H<sub>1</sub>:** There will be a positive relationship between Nursing Aptitude Test and Academic Performance of nursing students.

**H<sub>2a</sub>:** There will be a positive association between the score of nursing aptitude test and age of the nursing student at 0.05 level of significance.

**H<sub>2b</sub>:** There will be a positive association between the score of nursing aptitude test and stream of the nursing students at 0.05 level of significance.

**H<sub>2c</sub>:** There will be a positive association between the score of nursing aptitude test and the schooling of the nursing students at 0.05 level of significance.

**H<sub>2d</sub>:** There will be a positive association between the score of nursing aptitude test and the medium of nursing student at 0.05 level of significance.

## MATERIALS AND METHODS

The study was conducted in November 2017. A Quantitative research approach and non- experimental design was used to assess the relationship between nursing aptitude test and academic performance of nursing students. Permission from the institutional head was obtained before initiating the study for ethical consideration. The data was collected from 46 GNM II year student nurses of Apollo School of Nursing, New Delhi through a structured nursing aptitude test



questionnaire. Total enumerative sampling technique was used to select the subjects. The tool comprises of 3 sections: Section-I consists of 4 items to collect the demographic data of nursing students i.e. age, subject, medium of education, type of school. Section-II: consists of structured nursing aptitude question. Section III: consists of the academic score of GNM second year students in final session exams. Content validity of data collection tool was determined by the experts' opinion. The structured questionnaire consisted 10 questions. It was self-generated and adapted from aptitude text book. The data presented in Table 1 and 2 represent the scoring criteria for academic performance and nursing aptitude test (NAT) respectively.

## RESULTS

The data was analyzed by descriptive and inferential statistics. Fig. (1a- 1d) depicts that most of the students (60.8%) were in age group of between 18-20 years, (32.6%) were between 20-22 years and (6.5%) were in age group of above 20 years. Out of the total students (39.1%) girls were from science stream, (30.4%) are from commerce stream and (30.4%) are from arts stream. Regarding schooling (52.1%) girls had passed from govt. school and (47.8%) passed from private school. The percentage of girls who had done their schooling in Hindi medium are (10.8%) and in English medium is (89.1%).

The data presented in figure 2 states that Majority of the students (84.7%) have obtained average performance whereas (13%) gained Good and (2.1%) scored poor performance in the last Delhi Nursing Council exam.

Fig. 3 states that Majority of the students (73.9%) scored average, (17.3%) scored poor and (8.3%) scored good in the Nursing Aptitude Test.

The data presented in Table 3 shows that the

Karl Pearson coefficient of correlation for this research is 0.36 which reveals that there is a positive correlation between nursing aptitude test and academic performance of the nursing students.

The data presented in table 4 indicates the calculated Chi Square values between Nursing Aptitude Test and selected factors. The Chi Square value 0.18 calculated to establish the association between Nursing Aptitude Test and Age was not found to be statistically significant at 0.05 level of significance for degree of freedom 2. This shows there is no association between Nursing Aptitude Test and Age. Hence research hypothesis (h1) was rejected.

The Chi Square value 2.35 calculated to establish the association between Nursing Aptitude Test and Class 12<sup>th</sup> Stream variable was not found to be statistically significant at 0.05 level of significance for degree of freedom 2. This shows there is no association between Nursing Aptitude Test and Class 12<sup>th</sup> Stream of education. Hence, null hypothesis (h0) is accepted and research hypothesis (h1) is rejected.

The Chi Square value 2.074 calculated to establish the association between Nursing Aptitude Test and type of school variable was not found to be statistically significant at 0.05 level of significance for degree of freedom 1. This shows there is no association between Nursing Aptitude Test and type of school attended. Hence, null hypothesis (h0) is accepted and research hypothesis (h1) is rejected.

The Chi Square value 1.96 calculated to establish the association between Nursing Aptitude Test and medium variable was not found to be statistically significant at 0.05 level of significance for degree of freedom 2. This shows there is no association between Nursing Aptitude Test and medium of instruction. Hence, null hypothesis (h0) is accepted and research hypothesis (h1) is rejected.

**Table 1. Scoring criteria for academic performance.**

Rank of students	Criteria
Good	(1-15)
Average	(16-30)
Poor	(31-46)

**Table 2. The scoring criteria for NAT**

Aptitude test score	Criteria
Good	(>7)
Average	(5-7)
Poor	(<3)

**Table 3 showing the relationship between nursing aptitude test and academic performance.**

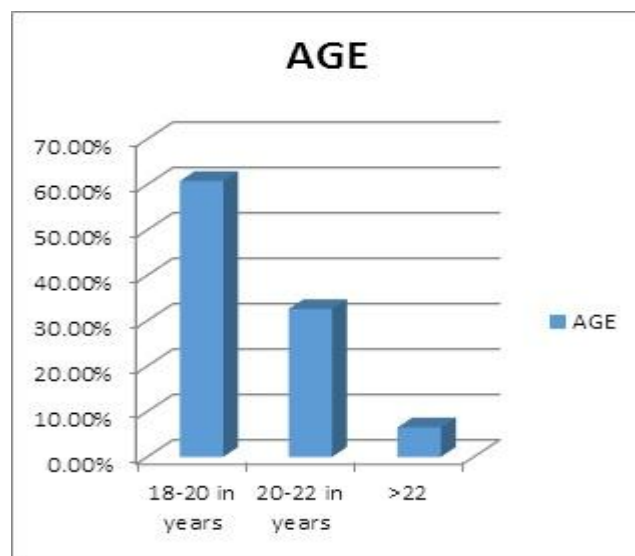
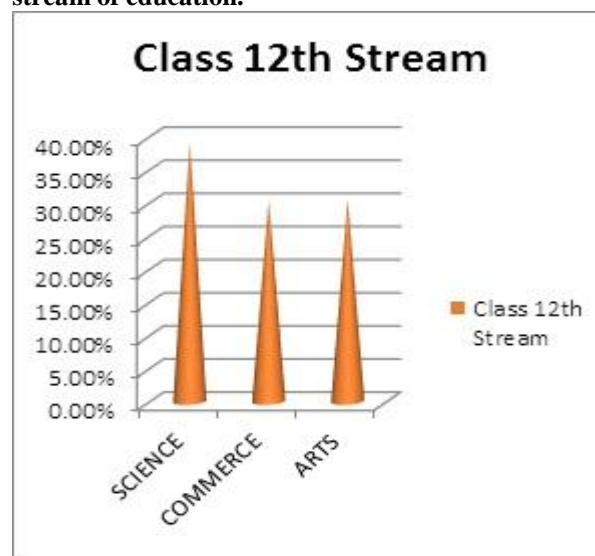
Variables	Mean	Karl Pearson's Coefficient
Nursing Aptitude test score	5.65	r =0.36
Academic Performance	20.9	



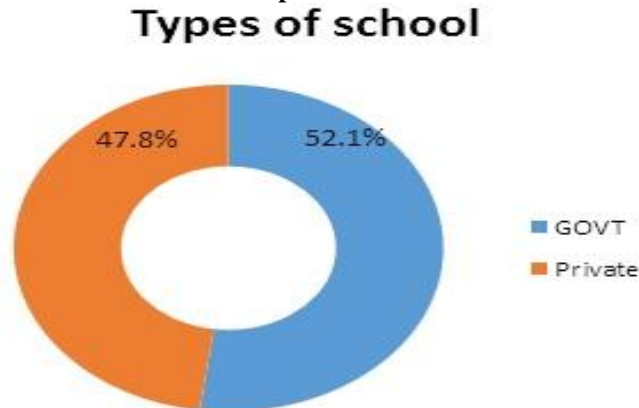
**Table 4** Calculated Chi Square values between Nursing Aptitude Test and selected factors

Variable	NAT		Chi Square (Calculated)	Df
Age	Below median	Above Median	0.18	2
18-20	15	13		
20-22	8	7		
>22	2	1		
Class 12 <sup>th</sup> stream			2.35	2
Science	10	8		
Commerce	8	6		
Arts	4	10		
Schooling from			2.074	1
Govt.	13	11		
Private	8	14		
Medium of instruction			1.96	2
Hindi medium	3	2		
English medium	19	22		
Others				

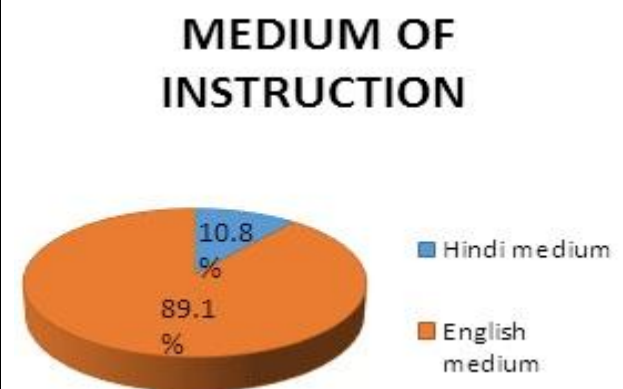
df(2)=5.99, df(1)=3.84,  $p < 0.05$  level of significance.

**Figure 1 (a):** column graph showing percentage distribution of GNM nursing students in relation to age**Figure 1(b):** Column graph showing percentage distribution of GNM nursing students in relation to stream of education.

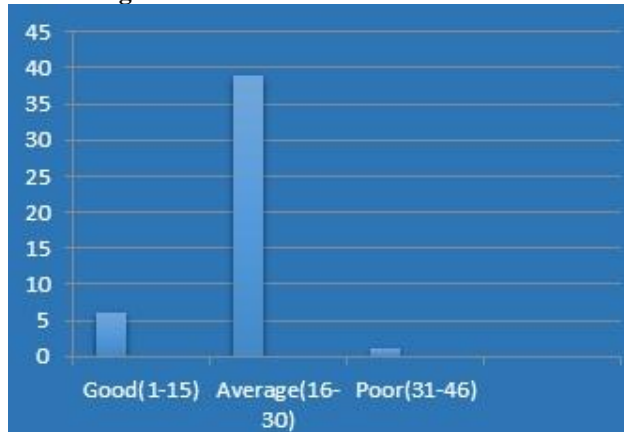
**Figure 2 (c): Doughnut graph showing the % distribution of nursing students in relation to the type of school from which the students have passed out.**



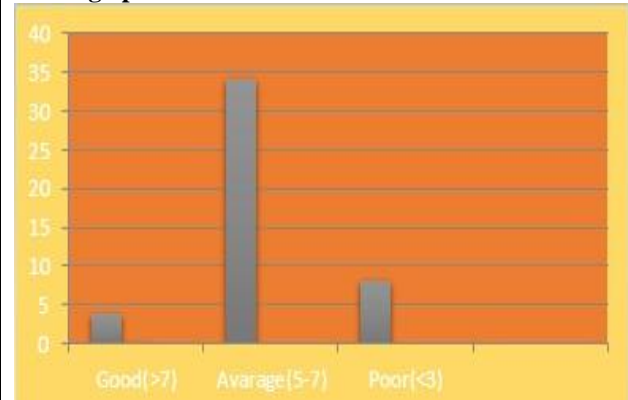
**Figure 1 (d): Pie charts showing the percentage distribution of nursing students in relation to their medium of instruction**



**Figure 2: Bar graph showing percentage distribution of nursing students in relation to their academic rank.**



**Figure 4: Bar graph showing the percentage distribution of nursing students in relation to their nursing aptitude score.**



## DISCUSSION

The present study was aimed to assess the relationship between nursing aptitude test score and the academic performance according. The investigators found limited literature regarding Nursing aptitude Test among the nursing students.

Findings revealed that there is significant relationship between the Nursing Aptitude Test and Academic Performance of the nursing students.

- Majority of the students (60.8%) were between the age of 18-21 years. Among the students participated in the study (39.1%) were from science and 30.4% from commerce and arts stream respectively. Nearly half of the students (52.1%) were passed from government school. Majority of the students (89.1%) were from English medium.
- Out of 45 students (84.7%) students had average academic performance.
- Regarding Nursing Aptitude test score (73.9%)

students had average aptitude for nursing.

- The calculated Karl Pearson coefficient of correlation score (0.36) revealed that there is a positive correlation between the Nursing Aptitude Test and Academic Performance of the nursing students.
- The calculated Chi Square value (0.18, 2.35, 2.07 and 1.96) showed that there is no significant association between the Nursing Aptitude Test and the selected demographic variables of Age, Stream, Schooling and Medium of Instruction at 0.05 level of significance. The following conclusion was drawn on the basis of findings:

There is a positive relation between nursing aptitude test and academic performance of nursing students but there is no significant association between Nursing Aptitude Test and selected demographic variables.

These findings were in agreement with Platt et al. (2012) investigated pre-admission criteria, Scholastic





Aptitude Test (SAT) scores, and high school grade point average (HSGPA) and determine the ability criteria to predict the college grade point average (CGPA) of graduates from athletic training program and from 5 other allied health disciplines. It was found from this study that overall, HSGPA and SAT score were predictive of student success (CGPA) in the allied health group as a whole and should continue to be used as part of the process of admission in higher education until such time that more predictive criteria are determined. The HSGPA was predictive of CGPA ( $r^2 = 0.38$ ) in athletic training

graduates, predicting more than one third of the professional program success.

Navarro Vitamog, Tierra & Gonzalez (2011) has done a study in Philippines to assess academic performance, nursing aptitude test and college admission test to predict success in Nursing Board examination. Multiple regression analysis revealed all three variables were effective predictors. The researchers a score of 85% or higher in college admission test as one of the standard requirements for first year admission and it should be strictly followed to ensure that only students capable of handling the mental demands of the course are retained.<sup>10</sup>

## REFERENCES

1. shodhganga.inflibnet.ac.in/bitstream/10603/36990/10/10\_chapter.pdf
2. Anonymous 1. <https://www.kcl.ac.uk/nursing/research/nnru/publications/Reports/Nursesinsocietyoralevidence.pdf>
3. Ghaleb Hamad Alnahdi. (2015) The Predictive Validity of the General Aptitude Test (GAT) in Saudi Arabia. *International Education Studies*, 8(4).
4. Anonymous 2. [<https://files.eric.ed.gov/fulltext/EJ1060891.pdf> ]
5. Meghan L. Kiley, RI Robert K. Gable. (2013) Validation of the Secondary School Admission Test (SSAT) Using GPA, PSAT, and SAT Scores, Research paper presented at the 44th annual meeting of the Northeastern Educational Research Association, Rocky Hill, CT.
6. Anonymous 3. [<https://www.jwu.edu/files/pdfs/www2/JWUGradMeghanKiley.pdf> ]
7. Ayodele, Kolawoleolanrewaju, Aladenusi, Oluwakemi, Akinlana, Temidayo. (2014) Personality Factors, Academic Emphasis, and Students Lecturers' Relationship as Determinants of Undergraduates' Academic Achievement Goal Orientation: The Nigeria Experience. *Journal of Humanities And Social Science*, 19, 04-11.
8. Anonymous 4. [<https://pdfs.semanticscholar.org/d071/2f90c7065abe3898017e8d0f7d2c90b4db29.pdf> ]
9. Van de Mortel, Thea, P. Whitehair, Leeann, M. Irwin, Pauletta. (2013) A whole-of-curriculum approach to improving nursing students' applied numeracy skills. *Nurse Education Today*, 34(3).
10. Anonymous 5. [<https://pdfs.semanticscholar.org/d03b/cc20dd14a654b367e62d2e08a7dab5f8fc01.pdf> ]
11. Annette Mercer, Ian B Puddey. (2017) Admission selection criteria as predictors of outcomes in an undergraduate medical course. *Journal of athletic training*, 33(12), 997-1004.
12. Al-Awwab M. Dabaliz, Samy Kaadan, M. Marwan Dabbagh, Abdulaziz A. Barakat, Mohammad Abrar Shareef, Mohamad Al-Tannir, Akef Obeidat, Ayman M.A. Mohamed. (2017) Predictive validity of pre-admission assessments on medical student performance *International Journal of Medical Education*. 8, 408-413
13. [<https://pdfs.semanticscholar.org/bef6/58b8b0220c15c50845646bba9250a6976279.pdf> ]
14. Grace, Jamila A Correlational Study Of The Relationship Between Teas V And Success In Licensed Practical Nursing Students, University Of Phoenix Proquest Dissertations Publishing, 2017.
15. Anonymous 6. [<https://search.proquest.com/openview/c31bc52bedd0416d1aafb47879a03da4/1?pq-origsite=gscholar&cbl=18750&diss=y> ]
16. Navarro RT, Vitamog AT, Tierra RJ. & Gonzalez DM. (2011) Predictors of Nursing Board Examination Performance. *National Peer Reviewed Journal*, 6, 232-246.
17. Anonymous 7. [[http://www.eisrjc.com/documents/Predictors\\_of\\_Nursing\\_Board\\_Examination\\_Performance\\_1325757145.pdf](http://www.eisrjc.com/documents/Predictors_of_Nursing_Board_Examination_Performance_1325757145.pdf)]

