INFLUENCE OF EDUCATION ENVIRONMENT ON ACADEMIC PERFORMANCE OF NURSING STUDENTS

By

MAXIE ANDRADE *   **RUBIYA I SHEKH ****   **THANKAMMA M.S *****

Associate Professor, St. Ignatius Institute of Nursing Sciences, Honavar, India.
*** Assistant Lecturer, St. Ignatius Institute of Health Sciences, Honavar, India.*
**** Prinicpal, St. Ignatius Institute of Health Sciences, Honavar, India.*

ABSTRACT

The context of learning, the educational environment and the learning styles have an influence on the academic performance. While the context of learning and learning styles are individualistic, the education environment provided by an institution is generic. The aim of this study was to assess the education environment as perceived by the learners. The objectives of the study were to describe the education environment and academic performance and identify the relationship between education environment and academic performance. A cross sectional survey was held in December 2013, one of the nursing institutions in India offering diploma and graduate nursing program. The Participants were the enrolled students available on the day of data collection and consented to the study. The total score obtained in the board/university examination was the measure of academic performance. The total score obtained from the administration of Dundee Ready Education Environment Measure (DREEM) was regarded as the educational environment. The Karl Pearson correlation coefficient was used to assess the relationship between education environment and academic performance. The education environment was perceived as 'more positive' by 84.84% of graduate (n=66) and 76.66% of diploma nursing students (n=90). However, the relationship between education environment and academic performance was not statistically significant among graduate (r= 0.006, p= 0.97, n=44) and diploma (r= 0.145, p=0.22, n=73) students. Nursing students should make effective use of the educational environment.

Keywords: Education Environment, Academic Performance, Nursing, India.

INTRODUCTION

Learner's academic achievement is the interplay between the self, course organizers, the curriculum, the context, approach to learning, learning style and the teaching learning environment (both within and outside the educational institution). However, by and large, the academic performance of a learner is often related to the educational environment provided by an institution. When the learner is enrolled for a full-time professional programme, it is true that the learner is expected to spend most of the time of learning (in terms of requirement of attendance), within the educational institution. Thus the academic performance of learners of professional programmes, does reflect the quality of education environment provided by institutions.

Nursing curriculum in India for basic and advanced courses is laid down by the Indian Nursing Council (INC) and

is uniform throughout the nation. Eligibility for nursing courses, aims and objectives, medium of instruction, duration, number of hours of instruction (theory and practical) for each course, eligibility to appear for university or board examination, scheme of examination are detailed by INC. The infrastructure facilities including the size of classrooms, labs, offices, library, accommodation and the required clinical facilities are also detailed. Every college or school of nursing in India is required to abide by the guidelines of INC.

The student admissions for nursing courses in India are done at the institutional level and the certifying examinations are held at the University or board level. The nursing educational institutions are expected to create a supportive educational environment to prepare, strengthen and empower students with necessary knowledge, skills and attitude so as to enable them to

provide comprehensive quality nursing care to individuals in hospital/health centre or in the community. However, the institutional climate in which students practice, provide experiences are found to be far different from the ideal and differ from institution to institution (Flower, 2014; Gilbert 2014).

Published literature (Lawrence 2014; Pandit, 2014) outlines the expectations of students and academicians in terms of the educational environment. Students and academicians expect teachers to be approachable, good listeners, friendly, confident, well prepared, pleasant, experienced, able to provide constructive and immediate feedback (Jose, 2014). Students are expected nursing teachers to demonstrate nursing care during clinical postings. However, there is a paucity of research related to the evaluation of educational environment provided by nursing institutions, in India.

The review in search of a valid measure to evaluate the educational climate revealed Dundee Ready Education Environment Measure (DREEM) was a standardized, internationally accepted, useful tool to measure the educational climate (Roff & Aleer, 2001). DREEM is a composite of five subscales namely, perceptions of learning, academic self perception, course organizers, atmosphere and social self perception. A study in India (Mayya, 2004) among 508 medical students reported the internal consistency reliability of the composite DREEM as 0.92. The cronbach alpha of subscales ranged from 0.72 to 0.78, except for the social self perception (0.51).This report describes the educational environment of a nursing educational institution in India offers basic nursing programmes and the relationship between education environment and the academic performance.

Methods

A cross sectional study was undertaken in a selected nursing training institution of south India offering diploma (three years and six months) and graduate nursing (four year) programs. The institution was run by a registered charitable trust. The diploma nursing programme had been running for the past ten years, whereas the first batch of B. Sc. Nursing students were in their final year of study.

The institution is a four storied building with a capacity to accommodate 60 students per batch for diploma program and 40 students per B. Sc. Nursing programme. The campus has a 250 bedded hospital and students are also sent to government and sister institutions for clinical practice. Two villages are adopted by the institution to render community health nursing services. Transport and accommodation facility are provided by the institution. Value education is embedded into the curriculum (which is not recommended by INC). Five-part time teachers taught non nursing subjects. The full-time teacher student ratio at the institution at the time of study was 1: 16(The teachers were involved in teaching both diploma and B. Sc. Nursing course). The institution was active in organizing events of national importance and co-curricular activities every month apart from the regular teaching learning (curricular) activities. There were ongoing camps and awareness programmes at the parent hospital facility.

In this study, academic performance was defined as the grand total scores obtained in the university examination by graduates and board examination by diploma nursing students. Education environment was referred to as the total scores of DREEM. However, as DREEM was developed in a non Indian setting, content validation was done with five experts {Nursing (2); Clinical psychology (1), Biochemist (1) and Pharmacy (1)}who was involved in teaching nursing students for at least the past five years. Experts rated every item of the scale as most relevant and advised simplification of the language (words) of the tool. Language of the tool was modified, pretested among 10 students and then was given for editing to an English expert.

The study was approved by the Institutional Review Committee. Permission from the institutional head was obtained. There were a total of 304 students enrolled for the course during the year 2013-2014, of which 121 were pursuing B. Sc. Nursing programme. The data was collected in December 2013, on a single day by administering the background proforma and the DREEM scale in the respective classrooms after briefing the purpose and nature of the study. It was informed that the participation was voluntary and that the confidentiality of data would be maintained. Informed consent was obtained. The participants were seated three feet apart

and the data collection process was supervised to ensure no discussion or copying among participants.

All students present on the day of data collection consented to participate in the study (one student of the diploma nursing programme was absent). The university and board examination scores were obtained from the Principal. Statistical Package for Social Sciences (SPSS) version 15 was used for analysis of data. Missing items of DREEM were excluded for analysis.

Results

The majority of the participants of diploma programme were from Karnataka (84%) and graduate nursing programme were from Kerala (74.4%). The majority of the participants were interested in nursing courses (97%); had joined nursing out of own interest (69.6%); belonged to nuclear families(86.8%) and were residing in the hostel (87.8%). Students of B. Sc. Nursing were with Science background in pre university education, however, only 7.7% of diploma nursing students were with a science background in pre university education. Only 13.5% of the participants of diploma programme were of age above 21

years and the rest were between 18 to 21 years. The main support system for studies for majority (68.7%) of the participants was the family.

Education environment

The scores of the subscales and the composite scale are described in Table 1. The sample size presented in the table is the number of respondents who responded to every item of the subscale or the composite scale. The minimum score of each subscale was zero. Table 1 reveals that majority perceived educational environment was more positive (80.5%), attitude towards atmosphere was more positive (76.9%), course organizers were moving in the right direction (76.3%) and had a more positive perception of learning (63.9%).

Comparison of scores of DREEM between diploma and graduate nursing students

The independent t test was used to compare the DREEM scores within (among junior and senior students) and between groups and the findings are shown in Table 2. Students of the first and second year were clubbed as junior and the third and fourth year of study as senior students.

Subscale	N	Obtained scores			Range and interpretation of the scores (% of respondents)		
		Min	Max	Mean (SD)			
Perception of learning (Max Score: 48)	233	19	44	34.76 (4.2)	13-24 Teaching is viewed negatively (1.7%)	25-36 A more Positive Perception (63.9%)	37-48 Teaching is highly thought of (34.4%)
Perception of course organizers (Max score: 44)	257	14	43	28.87 (4.58)	12-22 In need of some retraining (8.2%)	23-33 Moving in the right direction (76.3%)	34-44 Model course organizers (15.5%)
Academic self perception (Max score: 32)	269	14	32	24.62 (3.78)	9-16 Many negative aspects (3.3%)	17-24 Feeling more on the positive side (42.4%)	25-32 Confident (54.3%)
Perception of atmosphere (Max score: 48)	251	17	44	32.09 (4.84)	13-24 There are many issues which need changing (6.4%)	25-36 A more positive attitude (76.9%)	37-48 A good feeling overall (16.7%)
Social self perception (Max score: 28)	261	09	28	18.19 (3.26)	8-14 Not a nice place (13%)	15-21 Not too bad (70.5%)	22-28 Very good socially (16.5%)
Total DREEM (Max score: 200)	154	92	177	137.58 (15.08)	51-100 Plenty of problems (1.3%)	101-150 More positive than negatives (80.5%)	151-200 Excellent (18.2%)

Table 1. Description and interpretation of scores of DREEM scale

Group		N	Mean	SD	t (df)	P	95% Confidence interval
Graduate Nursing programme	Junior	44	137.25	12.97	2.169	0.034*	0.686 - 16.633
	Senior	22	128.59	19.17	(64)		
Diploma nursing programme	Junior	36	143.92	14.131	2.199	0.031*	0.637 - 12.62
	Senior	52	137.29	13.742	(86)		
	Graduate	66	134.36	15.715	2.328	0.021*	0.853 - 10.42
	Diploma	88	140.00	14.205	(152)		

* $P < 0.05$

Table 2. Comparison of DREEM scores within and between graduate and diploma nursing students

Table 2 reveals that there was a significant difference in the perception of education environment among junior and senior students within and between groups.

Academic Performance

The university/board results were available of the 77 graduate and 129 diploma nursing students and the same is described in Table 3. A total of 10.4% of graduate and 33.33% of the diploma nursing students failed in one more subject.

Relationship between education environment and academic performance

The Karl Pearson correlation coefficient (r) was used to determine the relationship between academic performance and educational environment and was found to be nonsignificant (r = 0.115, P = 0.223, n=115). Among graduate students, the correlation coefficient (r) was 0.006 (P=0.97, n= 44) and among diploma students, r = 0.154 (P = 0.20, n= 73).

Realibility of DREEM scale

The internal consistency reliability of the DREEM scale was computed. The cronbach alpha of the subscales and the composite scale is shown in Table 4.

Discussion

Nurses are an important health care manpower resource and are accountable for their actions. Nursing institutions have a responsibility to prepare a competent nurse workforce to provide preventive, promotive and rehabilitative services to individuals, families or communities independently and to assist in curative services effectively. Thus, it is essential that learning environments provided by nursing institutions promote nursing competency among potential professionals. The present survey revealed that the learning environment provided by the institution was more positive and the finding is similar to studies held in India (Mayya, 2004) and abroad (Hamid et al, 2013; Pimparyon et al, 2000). The mean scores of every subscale and the composite scale of the present study were higher than that of the studies done abroad.

A study in India (Mayya, 2004) found a significant difference in the perception of education environment between achievers and non achievers. However, no such difference was found in this study between the students who passed the course and failed. A difference of 3.35 percentage points between graduate and 2.5 percentage points among diploma students was observed in the mean DREEM scores.

The relationship between course organizers and academic performance had been the interest of few researchers. Analysis of data to assess the relationship between perception on course organizers and academic performance revealed non significant (r=-0.132, p= 0.078, n=178) relationship and this finding is similar to a study held in Malaysia. The present study also revealed a non significant weak, positive relationship between education environment and academic performance within groups and between groups. However the finding contradicts the assumption of the study that educational environment influences the academic performance of learners.

Grading	Graduates (N=77)		Diploma (N=129)	
	Range of scores	f (%)	Range of scores	f (%)
Fail	<50% in one or more subjects	08 (10.4)	<50% in one or more subjects	43 (33.33)
Pass	Any percentage of marks obtained with repeated attempts	0	50-59%	05 (3.88)
Second Class	50% < 65%	15 (19.5)	60-69%	48 (37.21)
First Class	65% < 75%	45 (58.4)	70-79%	33 (25.58)
Distinction	≥75%	09 (11.7)	≥80%	0

Table 3. Description of grades obtained in University/Board examination

Scales/subscales	N	α
Perception of learning	233	0.624
Perception of course organizers	257	0.565
Academic Self Perception	269	0.707
Perception of Atmosphere	251	0.585
Social self perception	261	0.331
DREEM scale	154	0.823

Table 4. Internal consistency reliability of the DREEM scale and its subscales

The DREEM scale demonstrated good internal consistency reliability (α = 0.825) when administered to nursing students of India. The reliability is low compared to a study held among Malaysian medical students with the original (α = 0.936) scale and shortened version (α = 0.921) of the scale (Yousoff, 2013) and in India (Mayya, 2004).

INC recommends admission of candidates with a science background for graduate nursing programmes and prefers science background for the diploma nursing programme. Of the 100 diploma nursing students with an arts background in pre university education, 36 failed; of the 17 with commerce background, only two failed and there were no failures among those who were with a science background in pre university education. The finding affirms the notion of INC to admit students with a science background.

The finding of the current study invite further studies with focus or attention to variables such as the curriculum implementation pattern of the institution and the context of learning, the learning styles and approaches to learning of the learner. One of the major limitations of the study was the use of non translation of DREEM to local languages, which certainly could have minimized the number of incomplete questionnaires. The study has implications to nursing education and management. The study findings did lay the foundation to critically analyze the education environment at the selected institution. The study implies that students need to make use of the education environment effectively. The educational institutions have the responsibility to promote an educational environment for a far better academic output and production of able manpower.

Conclusion

Education environment provided by the institution is one of the many factors which have an influence on the academic performance of the students. The learners within an institution should utilize the facilities effectively for a far better academic output.

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ABOUT THE AUTHORS

Maxie Andrade is currently working as a Associate Professor in St. Ignatius Institute of Nursing Sciences, Honavar, India.

Rubiya I shekh is currently working as Assistant Lecturer in St. Ignatius Institute of Health Sciences, Honavar.

Thankamma M. S., is currently working as Principal in St. Ignatius Institute of Health Sciences, Honavar.