Education Section

Factors Affecting Learning Among Undergraduate Nursing Students: Cross-Sectional Survey

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ABSTRACT

Introduction: Nursing education expects the students to be competent enough to render quality care for their patients in hospital as well as community setting. To reach the level of expected competency, the students must undergo vigorous training during their undergraduate education. The learning experience of the students is influenced by many factors.

Aim: To identify the factors, affecting learning as perceived by the students.

Materials and Methods: This descriptive survey was conducted among 414 undergraduate nursing students enrolled in selected Nursing Colleges. Background information was collected using Demographic Proforma and the factors affecting learning were identified using Likert Scale. Factors were identified by exploratory factor analysis using extraction method of principal component analysis with varimax rotation.

Results: Majority (73.7%) of the samples were between 22-25 years of age, 93.2% were females, most (38.9%) were studying in the fourth year of nursing, 50% of the students enrolled in the study had chosen nursing as a career due to job security in future, 58.7% students did not spent time every day for their studies and majority (89.1%) had English as their medium of instruction in Pre-university college. Factor analysis identified five factors (Learning environment, Supportive services, Teacher characteristics, Learner challenges and Personal factors) that affect the student learning.

Conclusion: From the present study it can be concluded that perception of students do have an influence on factors affecting learning. The study findings will help the faculty members to bring in changes for the best learning outcome.

INTRODUCTION

Nursing education prepares the students from different cultures and beliefs to be competent in rendering professional nursing care to people of all ages, in all phases of health and illness. Nursing students are required to acquire and learn relevant skills and knowledge in the medical, behavioural and biological sciences. Nurse teachers have faced the need to juggle the roles of teaching, administration, research and clinical support for students. Nursing students within the Higher Education Institutes require more than the traditional theoretical classroom teaching. Nurse teachers have a role beyond this in encouraging students to link theory with practice, and practice with theory. There in lies a challenge for nurse teachers to ensure they remain credible within the clinical setting and continue to provide education and support, which is firmly grounded in both practice and theory [1].

Every student learns in a different way and at his or her own pace. There might be certain factors, which may promote or hinder their learning abilities and experience. Thus, in order to facilitate learning it is paramount that these factors must be identified and accorded due importance. A caring, supportive learning environment transforms faculty-student relationship into a collaborative partnership that promotes professional socialization and empowerment [2]. A qualitative study found that learning environment, educational behaviour of instructors and individual factors of students influence the learning among nursing students [3].

Similarly, it was reported from a study from Kenya that apart from teacher's characteristics such as professional qualifications, availability of physical facilities, the student personnel management services, and provision of teaching and learning material another important factor which influences the performance of student in a positive way is instructional supervision by head teacher [4].

Studies have also reported negative factors which have adverse influence on the academic and learning performance of nursing students. The important factors identified are bias in selection criterion, poor infrastructure, lack of technology, communication barrier, lack of motivation, and inadequate learning opportunities [5]. Gender, nationality, participation in co-curricular activities and interest in pursuing higher studies were identified as factors which influence the academic performance of students [6]. A cross-sectional study found that limited examination time, inappropriate training in laboratories and hospital, inadequate English language training course, unavailability of entertainment facilities and poor infrastructure as the learning barriers [7]. Similar study from Oshana found teaching and learning related factors, insufficient resources, curriculum related factors, lack of university accommodation, socio-economic factors, students attitude towards lecturers and own study and lack of self-discipline are the factors that hinder the academic performance [8].

In view of the above mentioned studies it is clear that the identification of factors which influence the learning are very important. Thus, the present study was undertaken to identify the factors which influence learning.

MATERIALS AND METHODS

The present study was a cross-sectional study. The study was conducted on 414 undergraduate Nursing students of two nursing institutions under a selected University at Karnataka. The study was conducted during the academic year 2015/2016. A convenience sample of undergraduate Nursing students (level 1 to level 4) who were available during the data collection and who agreed to participate in the study constituted the study sample.

Demographic Proforma and Likert scale was used in the present study. The likert scale was written in English. The total number of

items were 55, which was categorized under nine domains; teacher characteristics, clinical facilities, curriculum, extra-curricular activity, student personnel management, motivation, communication, infrastructure availability and personal factors. The provided rating for each item was 4 (Strongly agree), 3 (Agree), 2 (Disagree) and 1 (Strongly disagree). The scale was developed based on the investigator's experience and the literature review [9-11].

The tools were given to three nursing and two medical education specialists to establish the content validity. The content validity index of the demographic Proforma was one and likertscale was 0.98. Experts comments were incorporated in the final draft of the scale. Pre testing of the tool was conducted among 10 first year Post-Basic B.Sc Nursing students and one item was deleted from the tool. The reliability (internal consistency) of the likert scale (scale to assess factors influencing learning) was established by administering to 20 second year Post Basic B.Sc Nursing students using the Cronbach Alpha equation (r = 0.8). The pilot study was done among 50 Diploma nursing students of the same institution to check the feasibility of the study.

Institutional ethical committee clearance was obtained (KMC IEC 36/2015). Written and informed consent was obtained from the participants. In the presence of investigator the participants were asked to complete the administered tools. The students were explained about the purpose of the study and informed consent was taken from every participants. The confidentiality of the data was maintained. All the students (first year to fourth year) who were available on the day of data collection answered the administered tools. Hence, the sample size was 414.

STATISTICAL ANALYSIS

The analysis was performed by using SPSS version 15.0 (Statistical Package of Social Sciences). Descriptive analysis was performed to present the sample characteristics. Factor analysis and principal component extraction method were employed in the present study. The number of factors to be extracted were determined by using Kaiser's criterion, (which chooses only factors explaining more than the average variance of factors). Only factors that have eigenvalues (variances of the factors) larger than one are extracted. KMO measures the sampling adequacy for each variable [12]. Factor analysis was performed in order to determine the factors, which had an effect on learning as per the perception of the learners.

RESULTS

[Table/Fig-1] describes the sample characteristics. Out of 414 undergraduate nursing students,73.7% were 22-25 years of age, 93.2% were females, Most of them (38.9%) were studying in the 4th year of nursing, 50.5% of them had job security as the reason for choosing nursing as a career. A 58.7% of them did not spend time every day for their studies and majority (89.1%) had English as their medium of instruction in Pre-University College.

Bartlett's test of sphericity gave a p-value of < 0.001 and the Kaiser Meyer Olkin (KMO) test gave a value of 0.78. The scree plot is given in [Table/Fig-2]. Scree plot has Eigenvalues on the y-axis and number of factors on the x-axis. The criterion of Eigenvalue > 1 was used to determine the number of factors. The scree plot shows that five of the factors explain most of the variability since the line starts to flatten after factor five. Accepted five-factor solution had eight items loading in first factor (variance explained is 12.42%), five items loaded in second factor (variance explained is 7.45%), five items loaded in third factor (variance explained is 4.58%), six items loaded in fourth factor (variance explained is 3.91%) and six items loaded in fifth factor (variance explained is 3.36%) [Table/Fig-3]. Out of 55 items, 22 items did not load in any factor.

The first factor obtained had items associated with teacher and environment. Hence, it was named as the Learning environment. The second factor obtained had items associated with supervision,

Sample characteristics	Frequency (f)	Percentage (%)
Age (in years)		
<19	104	25.1
20-25	305	73.7
>25	5	1.2
Gender		
Male	28	6.8
Female	386	93.2
Year of study		
1st year	93	22.5
2nd year	77	18.6
3rd year	83	20
4th year	161	38.9
Monthly income of family in rupees		
< 20000	165	39.9
21,000-30,000	130	31.4
>30,000	119	28.7
Choice of nursing as a career		
Parents' /elders' suggestion	121	29.2
Job security	209	50.5
Nobility of the profession	54	13.0
Did not get admission for other course	10	2.4
Others	20	4.8
Time spent per day on independent studies		
One hour	72	17.4
Two hours	66	15.9
More than 2 hours	33	8.0
I don't study everyday	243	58.7
Medium of instruction in Pre University College		
Kannada	1	0.2
Malayalam	37	8.9
English	369	89.1
Hindi	7	1.7

[Table/Fig-1]: Description of sample characteristics (N= 414).
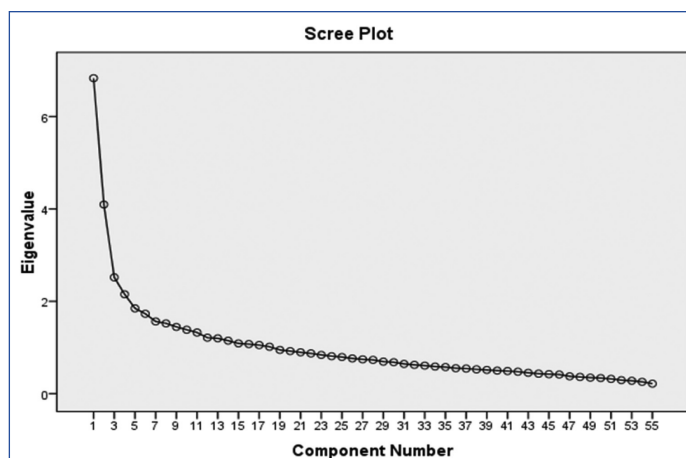
[Table/Fig-2]: Scree Plot showing factors affecting learning.

clinical teaching, and office staff; hence, the factor was named as Supportive services. The third factor obtained had items related to teacher and teaching and hence, it was termed as the Teacher Characteristics. The fourth factor had items related to difficulty in extracurricular activities and language which is considered the hindering factors affecting learning; hence, the factor was named as the Learning challenges. The fifth factor is more associated with the learner themselves hence, this factor was named as the Personal factors.

DISCUSSION

The study found that majority of the student were females (93.2%) between the age group of 22-25 years, our finding were in line with previous study. With regard to the level of students our finding was opposite to a previous study [13]. On the basis of factor analysis, the present study identified learning environment, supportive services, teacher characteristics, learning challenges and personal factors. These factors influence the student learning. One of the interesting

Rotated Component Matrix	Factor Loadings
Learning Environment	
1. My teachers teach me well.	0.635
2. My teachers adopt different teaching strategies to teach me in class	0.551
3. My teachers can be approached when I am in need.	0.612
4. The college provides me with adequate articles in the clinical area to give patient care.	0.535
5. I lose interest in learning due to long clinical duty hours.	0.588
6. Writing assignment do not help me to learn	0.495
7. I am helped at all times by my teachers in my learning	0.555
8. My classrooms are comfortable for learning.	0.428
9. I will learn better if I have continuous supervision by a teacher in the ward.	0.525
10. I feel clinical teaching in the ward helps me to improve my learning.	0.502
11. I feel I am better if my teacher demonstrates the procedures in the ward.	0.417
12. I feel the office staffs are approachable and assist me when required.	0.500
13. I feel the office staffs are available at most times for my academic need.	0.453
14. I feel the labs in college are well equipped for my learning	0.458
15. I form an opinion about my teachers based on what feedback is given by seniors/friends.	0.484
16. I do not feel comfortable with a teacher who previously has scolded/ warned me.	0.592
17. I do not like to learn the topic, which is taught by a teacher whom I do not like.	0.532
18. I am interested in learning the topic taught by a teacher who enquires about my personal well-being.	0.428
19. I am not interested in learning the topic taught by the teacher who I feel is indifferent towards me or to others.	0.611
20. I learn the subject better when the teacher is liberal in giving marks.	0.534
21. I study only if I like the subject.	0.491
22. I feel there are too many extracurricular activities for students, which hinder my learning.	0.478
23. I feel participating in extracurricular activities is a waste of time.	0.451
24. If my teachers do not speak my native language I find it difficult to approach them.	0.570
25. Classes in English language are difficult for me to understand.	0.663
26. I cannot ask doubts in class because I find speaking English difficult.	0.719
27. Language problem affects my learning	0.666
28. I feel I am able to apply the theory taught in the classroom in my clinical area well.	0.405
29. I study because I want to be helpful to others.	0.480
30. I study just to get pass marks	0.409
31. I find the library very useful for my learning	0.619
32. I feel I am utilizing the library resources to the fullest	0.672
33. My friends motivate me the most for my studies	0.490

[Table/Fig-3]: Factor loadings.

finding of the present study was the influence of office staff in student learning. The remaining factors explains a very small proportion of the variability hence, those factors are not much important.

The present study focussed on both the clinical and classroom learning; hence, the identified factors were not parallel with other study findings. A study done by Lawal J et al., identified preceptorship (89.6%), support from the clinical staff (78.4%), ratio of preceptor to students (74.8%) and the quality of pre-clinical conferences (63.8%)

as factors which influence the clinical learning experience [14]. Similar study done by Dale B et al., identified clinical setting, clinical supervisor, student and teacher-student relationship as factors which affect the clinical learning experience [15].

A study analyzed the factors affecting the academic performance of 74 student nurses from fourth year and identified teacher related factors, study habits, school related factors, personal and home related factors [16]. Similar study done by Lim et al., identified instructor quality, learning activity, learning support, learning motivation and learning involvement as the instructional and learner factors on learning outcome [17].

Another study conducted among 430 second year B.Sc Nursing students and those who completed the first year university examination to find the factors which motivated and hampered the students academic performance. The positive factors in the college were motivation from teachers (54.42%), desire to win academic awards (7.9%), availability of library books (26.51%), timely help from teachers (30.23%) and any other (2.79%). The factors which hampered their performance include: non-availability of library books (12.56%), absence of timely help from teachers (15.81%), lack of motivational factors in the college (19.53%) and any other (18.6%) [18].

The present study was undertaken with the assumption that factors like teacher characteristics, clinical facilities, curriculum, extracurricular activity, student personnel management, motivation, communication, infrastructure availability, personal factors may affect the learning of the students. Since, the study was conducted on a small sample of students in two institution of a selected University, thus, the findings may not be generalized. But authors are of view that identified factors should be taken into consideration during curriculum planning. This will help improve the student learning.

LIMITATION
The study was conducted on a small sample of students in two institutions of a selected University, thus the findings may not be generalized.

CONCLUSION
The perception of the respondents had influenced the identification of factors affecting learning. The study findings will help the faculty members to bring in changes in the learners for the best learning outcome. It provides results that could be useful to faculty for academic planning, implementation and evaluation.

REFERENCES
[1] Gillespie M, McFetridge B. Nursing Education – the role of the nurse teacher. J Clin Nurs. 2006;15(5):639-44.
[2] Prato DD, Bankert E, Grust P, Joseph J. Transforming nursing education: A review of stressors and strategies that support students' professional socialization. Adv Med Edu Pract. 2011;2:109-16.
[3] Ramazanibadr F, Amini K, Mohammadzadeh A, Mosaeifar M. The factors affecting the clinical learning of the nursing students: A qualitative research. J Med Edu Dev. 2011;4(6):20-30.
[4] Odhiambo JO, School-based factors influencing students performance in Kenya Certificate of Secondary Education in Homa-Bay District, Kenya. 2012; Retrieved from http://erepository.unonbi.ac.ke.8080/xmlui/handle123456789/7216 [Accessed on February 10, 2017].
[5] Baykal U, Sokmen S, Korkmaz S, Akgun E. Determining student satisfaction in a nursing college. Nurs Educ Today. 2005;25(4):255–62.
[6] Hassan S, Ismail N, Jaafar WYW, Ghazali K, Budin K, Gabda D, Samad ASA. Using factor analysis on survey study of factors affecting students' learning style. JAMI. 2012;6(1):33-40.
[7] Kujan O, Hasan RA, Nasog M, Badawi T, Hanouneh S, Nassani MZ. Assessing learning barriers among dental and nursing undergraduates: A qualitative study, student's perspective. OHDM. 2015;14(5):265-70.
[8] Pinehas LN, Mulenga E, Amadhila J. Factors that hinder the academic performance of the nursing students who registered as first years in 2010 at the university of Namibia, Oshakati Campus, Oshana. J Nurs Edu Pract. 2017;7(8):63-71.
[9] Mushtaq I, Khan SN. Factors affecting students' academic performance. GJMBR. 2012;12(9):17-22.
[10] Haraldseid C, Friberg F, Aase K. Students perceptions of factors influencing their

clinical learning environment in a clinical skills laboratory: A qualitative study. Nurse Educ Today, 2015; (Article in press).

[11] Abante ME, Almendeal BC, Manasala JE, Manibo J. Learning styles and factors affecting the learning of general engineering students. IJARPED. 2014;3(1): 16-27.

[12] Kellow JT. Exploratory factor analysis in two measurement journals: Hegemony by default. JMASM. 2005;4(1):283-87.

[13] Baillie L. Factors affecting student nurses learning in community placements: a phenomenological study. J Adv Nurs. 1993;18(7):1043–53. https://doi.org/10.1046/j.1365-2648.1993.18071043.x

[14] Lawal J, Weaver S, Bryan V, Lindo JL. Factors that influence the clinical learning experience of nursing students at a Caribbean school of nursing. J Nurs Edu Pract. 2016;6(4): https://doi.org/10.5430/jnep.v6n4p32 [Accessed on February 10, 2017].

[15] Dale B, Leland A, Dale JG. What factors facilitate good learning experiences in clinical studies in nursing: bachelor students' perceptions. ISRN Nursing. 2013;2013:628679. https://doi.org/10.1155/2013/628679 [Accessed on July 20, 2015].

[16] Alos SB, Caranto LC, David JJT. Factors affecting the academic performance of the student nurses of BSU. IJNSS. 2015;5(2): 60-65. https://doi.org/10.5923/j.nursing.20150502.04 [Accessed on February 10, 2017].

[17] Lim HD, Morris ML. Learner andd instructional factors influencing learning outcomes within a blended learning environment. J Educ Techno Soc. 2009;12(4):282-93.

[18] Joykutty A, Lakhani R, Cruz P, Pandit J, Deshpande V, Bhagat SA. Study of the selected factors influencing the academic performance of the first year basic B. Sc. nursing students of colleges affiliated to Maharashtra University of Health Sciences, Hashik. Virginia Henderson Global Nursing e-Repository. 2012; Retrieved from http://www.nursinglibrary.org/vhl/handle/10755/550468 [Accessed on July 20, 2015].

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