Evaluation of learning environment among Nursing undergraduates in state universities, Sri Lanka

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Abstract

Background: The learning environment is a vital part of the undergraduate curriculum which enable to deliver quality education in the stipulated time. However, the level of the learning environment is highly context bounded. Therefore, the study aimed to evaluate the learning environment among BSc. Nursing undergraduates in Sri Lankan state universities.

Methods: A descriptive cross sectional study was conducted among 161 final year BSc. Nursing undergraduates in six state universities. Socio demographic characteristics were collected using a self-administered questionnaire. The Dundee Ready Educational Environment Measure (DREEM) questionnaire was used to evaluate the learning environment in Perception of learning (SPL), Perceptions of teaching (SPT), Academic self-perceptions (SASP), Perceptions of the atmosphere (SPA) and Social self-perceptions (SSP). One way Analysis of Variance (ANOVA) and t test were used to determine the difference in the subscales and the overall scale.

Results: The mean age of the students was 24.9 ± 0.9 years. Student's Perception of learning showed the highest mean score of 31.1 ± 3.9 while the social self-perception showed the lowest score (mean 16.4 ± 3.1). A significant group effect was observed in SPL and SPT subdomains among state universities while no significant group effect was observed in other subdomains. Furthermore, participating in extracurricular activities, travelling time to the faculty and gender were observed as associated factors for learning environment among BSc. Nursing undergraduates in state universities.

Conclusions: Although the overall learning environment was within more positive, none of the university reaches to the excellent category. Therefore, remedial actions need to be taken to improve the learning environment in future.

Introduction

The learning environment straightly connects to the attainment, happiness, fulfillment and favorable outcome of the students and also leads to the quality of the educational programme [1, 2]. The successful learning environment connects with the best results of the learning institute and it develops values, views and professional performances of students [2, 3]. Furthermore, the learning environment is an inescapable part of the syllabus, influencing the association between students, techniques, assessments and academic consequences [4]. Student's Perception towards academic learning environment is related to their learning viewpoint and the learning result and also it is an excellent beginning to be looked into in nursing education [5]. Furthermore, the learning environment plays an essential character in association with student way of behaving, academic development, feeling of comfort and security during their degree programme [2].

At present, a four-year degree programme has been conducting for BSc. Nursing undergraduates by the University Grants Commission (UGC) in Sri Lanka, in five universities, follows; University of Sri-Jayewardenepura, University of Peradeniya, Eastern University, University of Jaffna and University of

Ruhuna [6]. Furthermore, General Sir John Kotelawala Defence University has also been offering the same UGC accredited BSc. Nursing degree programme under the Ministry of Defence. Additionally, the Open University of Sri Lanka has been offering a special BSc. Nursing degree programme for registered nurses who are already qualified with a diploma in nursing from the Ministry of Health, Sri Lanka as a post-registration programme [6].

The Dundee Ready Educational Environment Measure (DREEM) was developed by Dundee University, UK is used to measure the learning environment across the globe [7]. DREEM is a worldwide validated tool for measuring the learning environment in medical institutions [8]. Although there are several tools available to measure the medical learning environment, the DREEM was mainly used to assess the learning environment in the medical, dental and nursing undergraduate programme especially in Asia and Europe [8].

Learning environment straightly impacts the learning process of nursing students [1]. Furthermore, the majority of universities have observed in positive aspects of the learning environment while few had negative when delivering the nursing curricular [9]. However, two universities in Sri Lanka; the University of Ruhuna and Eastern University had been evaluated their learning environment in BSc. Nursing degree programs in the year 2012 and 2016 respectively while there was a paucity of data available in other degree programs [10, 11]. At present, all the BSc. Nursing degree programs are mature enough with facilities and staff and also successfully conducted at least one curriculum revision in recent two years. Therefore, it is a timely needed necessity to evaluate the learning environment of BSc. Nursing undergraduates in Sri Lankan state universities and compare the outcomes for better nursing education in Sri Lanka.

Methods

Study Setting and Population

A descriptive cross sectional study was conducted in all final year (4th Year) B.Sc. nursing undergraduates in six state universities during the period of August to November 2019. These universities were mentioned anonymously based on privacy and confidentially in arbitrarily order (A-F). The final year undergraduates are more familiar towards the delivered nursing curriculum, facilities, and teachers which provide substantial information of each degree programme.

The purposive sampling method was used to collect data among fourth-year nursing undergraduates. A total of 161 B.Sc. Nursing students studying in Sri Lankan state universities (A (n = 29), B (n = 20), C (n = 23), D (n = 29), E (n = 27) and F (n = 43)) were participated for this study.

Instrument

Study data were collected using a self-prepared demographic and DREEM questionnaire. The DREEM questionnaire includes 50 items to determine the learning environment under the following sub-domains; Perception of learning (SPL), Perceptions of teaching/instructors (SPT), Academic self-perceptions (SASP), Perceptions of the atmosphere (SPA) and Social self-perceptions (SSP). Each item score 0–4 on a 5 point Likert scale (4- strongly agree, 3-agree, 2-unsure, 1-disagree, 0-strongly disagree) while 10 items are negative statements and should be scored reverse manner. The maximum score of DREEM questionnaire is 200. Each individual item with a mean score ≥ 3.5 were considered as are true positive points while those ≤ 2 mean score are problem areas. Total value between 0–50 was considered as very poor followed by 51–100 = many problems, 101–150 = more positive than negative, 151–200 = excellent.

Ethical consideration

Ethical clearance to the study was obtained from the Ethical Review Committee, Faculty of Medicine, General Sir John Kotelawala Defence University, Sri Lanka. Furthermore, the written permissions were obtained from the Heads of Department of Nursing and Midwifery of each university before collecting data. Permission was obtained for the use of DREEM inventory. Written informed consent was obtained from each Nursing students before the implementation of the study.

Data collection

Before the commencement of the study, each Nursing student was informed of the purpose of the study. In addition, the procedure and the definitions of medical terms were explained. A reasonable time was given to complete the questionnaire. Completed socio demographic and DREEM questionnaires were collected from 161 B.Sc. Nursing students.

Statistical Analysis

All collected data was entered into Microsoft EXCEL 2007 and transformed in statistical package for social sciences (SPSS) software version 20. One way Analysis of Variance (ANOVA) was used to determine the difference in overall and its subscales with state universities. Pearson correlation was applied to determine the association between subscales. Student t test was used to determine the association with subscales across the selected socio-demographic variables. The significant level was taken as $p < 0.05$.

Results

A total of 161 students with the mean of 24.9 ± 0.9 years have participated in the study in six state universities. The overall score for perception of learning environment was 127.1 ± 14.3 .

Among the five subscales, Student's Perception of learning showed the highest mean score of 31.1 ± 3.9 while the social self-perception showed the lowest score (mean 16.4 ± 3.1). The overall score of DREEM and its subscales means and standard deviation are depicted in Table 1.

Table 1
Scores of Overall Perception of Learning Environment and its subscales (n = 161)

Sub domains	Maximum	Mean	Range	Interpretation
	value	SD	(min.-max.)	
Perception of learning (SPL)	48	31.1 (3.9)	16–40	More positive perception
Perceptions of teaching (SPT)	44	26.5 (4.3)	15–40	Moving in the right direction
Academic self-perceptions (SASP)	32	22.8 (3.3)	13–32	Feeling more on the positive
Perceptions of the atmosphere (SPA)	48	30.1 (5.0)	9–45	More positive attitude
Social self-perceptions (SSP)	28	16.4 (3.1)	3 - 22	Not too bad
Total score	200	127.1 (14.3)	72–173	More positive than negative
SD: Standard deviations				

The overall mean score of DREEM in the university A was 126.1 ± 10.4 followed by B was 123.3 ± 12.9 , C was 128.3 ± 14.3 , D was 132.3 ± 12.3 , E was 126.5 ± 15.5 and F was 127.1 ± 11.4 . The overall mean scores indicated that all universities were within more positive than a negative learning environment. University D was significantly high in SPL and SPT compared to other universities. However, SASP, SPA and SSP was not significantly associated with different universities (Table 2).

Pearson correlation coefficients were calculated in Table 3. There was a significant positive correlation in subscales (Table 3). Mean scores of < 2.00 are reflective of problem areas in the educational environment. The following items had a mean score of < 2.00 from students. 'The teaching over emphasize factual learning,' 'The teachers ridicule the students,' 'The teachers are authoritarian,' 'The teachers provide constructive criticism here,' 'The teachers get angry in class,' 'I find the experience disappointing,' 'I am too tired to enjoy this course' and 'I seldom feel lonely'(Table 4).

Participating in extracurricular activities, travelling time to the faculty and gender were observed as associated factors for learning environment among BSc. Nursing undergraduates in state universities (Table 5).

Table 2
Comparison of learning environment subdomains with state universities

Sub domains	Universities (mean $\pm$ SD)						
	A	B	C	D	E	F	p value
Perception of learning (SPL)	29.5 (2.7)	31.3 (4.8)	32.1 (4.3)	33.6 (3.2)	30.0 (4.6)	31.2 (3.3)	0.007
Perceptions of teaching (SPT)	27.6 (2.9)	25.5 (6.0)	26.4 (3.2)	28.5 (3.5)	28.0 (4.6)	24.6 (4.0)	0.002
Academic self-perceptions (SASP)	22.2 (3.3)	22.1 (3.5)	23.0 (3.3)	23.0 (2.1)	22.4 (3.3)	23.5 (3.6)	0.518
Perceptions of the atmosphere (SPA)	30.9 (4.3)	28.6 (4.6)	30.2 (5.4)	30.8 (4.7)	29.3 (4.9)	30.6 (3.8)	0.530
Social self-perceptions (SSP)	15.9 (2.4)	15.8 (4.4)	16.6 (2.9)	16.2 (3.5)	16.7 (2.5)	16.9 (3.0)	0.661
Total score	126.1 (10.4)	123.3 (12.9)	128.3 (14.3)	132.3 (12.3)	126.5 (15.5)	127.1 (11.4)	0.527

Table 3
Pearson correlation with subscales

Subscale		SPL	SPT	SASP	SPA	SSP
SPL	Correlation coefficient	-	0.315	0.476	0.465	0.325
	p value	-	< 0.001	< 0.001	< 0.001	< 0.001
SPT	Correlation coefficient	0.315	-	0.179	0.468	0.400
	p value	< 0.001	-	0.023	< 0.001	< 0.001
SASP	Correlation coefficient	0.476	0.179	-	0.463	0.308
	p value	< 0.001	0.023	-	< 0.001	< 0.001
SPA	Correlation coefficient	0.465	0.468	0.463	-	0.542
	p value	< 0.001	< 0.001	< 0.001	-	< 0.001
SSP	Correlation coefficient	0.325	0.400	0.308	0.542	-
	p value	< 0.001	< 0.001	< 0.001	< 0.001	-

Table 4
Problem areas of Perception of Learning Environment among participants

Subscale	Domain Item	Mean (SD)
Perception of learning (SPL)	The teaching over emphasize factual learning	1.50 (0.75)
Perceptions of teaching (SPT)	The teachers ridicule the students	1.80 (0.92)
	The teachers are authoritarian	1.46 (0.85)
	The teachers provide constructive criticism here	1.68 (0.84)
	The teachers get angry in class	1.89 (1.07)
Academic self-perceptions (SASP)	I find the experience disappointing	1.70 (0.80)
Social self-perceptions (SSP)	I am too tired to enjoy this course	1.47 (1.00)
	I seldom feel lonely	1.76 (1.01)

Table 5

Association of Perception of learning environment and its subscales with demographic characteristics

Variables	Categories	No. of	Sub domains (mean ± SD)				
		Participants	SPL	SPT	SASP	SPA	SSP
Age (Years)	22 - 24	61	30.7 (3.7)	25.9 (4.6)	22.8 (3.2)	29.6 (5.1)	16.6 (3.2)
	25 - 27	100	31.3 (4.1)	26.9 (4.2)	22.8 (3.3)	30.4 (4.9)	16.3 (3.0)
	p value		0.404	0.144	0.970	0.330	0.458
Gender	Male	50	30.2 (4.6)	25.8 (4.8)	23.2 (3.8)	30.6 (5.0)	16.7 (2.6)
	Female	111	31.7 (3.6)	26.9 (4.0)	22.6 (3.0)	29.9 (5.0)	16.3 (3.3)
	p value		0.045	0.149	0.255	0.466	0.504
Living places	with parents	31	31.9 (3.0)	26.5 (3.6)	22.4 (3.6)	29.9 (3.4)	16.7 (3.1)
	rent/hostel	130	30.9 (4.1)	26.5 (4.4)	22.9 (3.2)	30.2 (5.3)	16.3 (3.1)
	p value		0.228	0.974	0.445	0.759	0.570
Transport	on foot	46	31.6 (3.3)	25.8 (4.6)	23.7 (3.1)	30.9 (5.7)	16.3 (3.0)
	by bus/vehicles	115	30.9 (4.2)	26.8 (4.1)	22.4 (3.3)	29.8 (4.7)	16.4 (3.1)
	p value		0.290	0.154	0.037	0.209	0.874
Time to reach to the University	< 30 minutes	120	30.8 (4.1)	26.5 (4.3)	22.7 (3.4)	29.8 (5.4)	16.3 (3.1)
	≥ 30 minutes	41	31.9 (3.4)	26.5 (4.2)	23.1 (3.1)	31.2 (3.6)	16.9 (3.0)
	p value		0.125	0.919	0.557	0.129	0.289
part time employment	Yes	13	30.1 (3.4)	26.0 (4.0)	22.8 (4.2)	32.2 (2.6)	16.3 (2.5)
	No	148	31.2 (4.0)	26.6 (4.3)	22.8 (3.2)	30.0 (5.1)	16.4 (3.1)
	p value		0.362	0.668	0.988	0.128	0.934
Extra professional	Yes	48	31.3 (4.0)	26.8 (3.9)	22.7 (3.5)	30.2 (5.4)	16.5 (3.5)

Variables	Categories	No. of	Sub domains (mean $\pm$ SD)				
Course/ Diploma	No	113	31.0 (3.9)	26.4 (4.4)	22.8 (3.2)	30.2 (4.8)	16.4 (2.8)
	p value		0.698	0.645	0.839	0.813	0.859
Extra-curricular activities	Yes	75	31.8 (4.1)	26.6 (4.5)	23.4 (3.0)	30.6 (5.2)	16.8 (3.0)
	No	86	30.5 (3.8)	26.4 (4.0)	22.3 (3.5)	29.7 (4.8)	16.1 (3.1)
	p value		0.039	0.739	0.034	0.247	0.131

Discussion

This study revealed that the overall mean score of student perception towards the learning environment was within the more positive than negative category among all the state universities. Furthermore, the two Sri Lankan state universities; University of Ruhuna and Eastern University have been conducted similar studies in the years of 2012 and 2016 by using DREEM questionnaire as a study tool to determine the learning environment. The result was revealed that the mean overall DREEM score were 109 and 111 in the University of Ruhuna and Eastern University respectively [10, 11]. However, the present study has also included both state universities which are named in arbitrary order A-F. The outcome of the study was, the mean overall DREEM scores were comparatively higher than the mean scores in previous studies in both universities. Therefore, considerable improvement has been taken placed in the learning environment during the last 5 years' time.

DREEM subdomain of Student Perception of learning (SPL) represented the more positive status among all state universities. It indicates that in learner's opinion, the teaching practices in these universities were stimulating, dedicated and motivates students to become active and lifelong learners [7]. The Student Perception of teachers (SPT) showed that students believed their teachers are moving in the right direction. It indicates that Student Perception that teachers are using the right techniques and methods. They have good communication skills with students and parents and secondly, teachers provide constructive feedback to the student. In Student's academic self-perceptions (SASP) was the third domain and the findings revealed that it was in a more positive direction. That indicates Student's had more positive ideas and opinions on the implemented curriculum of each university [7]. The Student's Perception to the atmosphere (SPA) and Social Self-Perception (SSP) was stood at more positive attitudes and not a bad level respectively, which indicate the presence of positive learning environment in state universities [7].

Furthermore, BSc. Nursing degree programs in Sri Lankan state universities are far better than some Asian, African and South American countries. The overall mean score of DREEM questionnaire was 113, 112 and 106 among some medical faculties in Iran, Korean and Kuwait in the years of 2019, 2015 and 2009 respectively [12–14]. Moreover, some African and South American countries such as Nigeria and

Trinidad medicine programs were also observed the lower mean scores when compared to the Sri Lankan nursing degree programs in state universities, however, these studies were carried out in the years of 2001 and 2003. Therefore, the recent scores might be compatible with the Sri Lankan state universities [15, 16].

However, the nursing programs conducting in the South Asian regional countries such as Pakistan, Nepal, and Indonesia were identified that the all mean overall DREEM scores were just above 120 in recent past and compatible with Sri Lankan status [16–19]. Furthermore, Australia also has shown the compatible results in the field of dentistry when compared to South Asian region BSc. Nursing degree programs [20]. Achieving higher DREEM score may depend on more student-centred curricular, modified problem-based learning outcomes and effective combination of resources [21].

Furthermore, the few statements of SPL, SPT, SASP and SSP subdomains have been identified some problematic areas of perception of learning environment in the current study. While the SPT subdomain was comparatively problematic in the current study, by 2012 the SASP subdomain was shown more problems among Sri Lankan nursing undergraduates [10, 11].

Gender, transportation mode and participating in extra-curricular activities have been identified as associated factors of learning environment in the present study. However, male undergraduates was observed the higher mean DREEM score in the present study while female was observed the higher mean score in the public school of medicine, Brazil. Additionally, factors such as age and monthly income were the other associated factors which were not significant in the present study [22]. Similar to the present study, the Indian and Canadian studies revealed that the lower DREEM score was observed among female when compared to male undergraduates [23, 24].

However, there was some limitation in this study. The present study only assessed the limited demographic variables as associated factors but, there are many other predictors which are not included in this study that might be associated factors for the learning environment.

Conclusion

All the state universities conducting the BSc. Nursing degree programs in Sri Lanka have shown that the overall learning environment was within more positive than the negative but placed in the middle of the range. Only SPL and SPT subdomains were identified as a considerable difference among state universities. However, nearly 15 years of nursing undergraduate history, so far none of the university reaches to the excellent category. Therefore, all the universities should be considered about their weak aspects and get the remedial actions to improve the learning environment in future.

Abbreviations

DREEM: The Dundee Ready Educational Environment Measure, SPL: Perception of learning, SPT: Perceptions of teaching, SASP: Academic self-perceptions, SPA: Perceptions of the atmosphere, SSP: Social self-perceptions, ANOVA: One way Analysis of Variance

Declarations

Ethics approval and consent to participate

The ethical clearance was granted by the Ethical Review Committee of the Faculty of Medicine, General Sir John Kotelawala Defence University. Further, all the data collection documents and the consent form were also approved by this committee. Written permissions were obtained from the heads of department of Nursing of relevant universities.

Consent to publish

Not applicable.

Availability of data and materials

All data generated or analyzed during this study are included in this published article.

Competing interests

The authors declare that they have no competing interests.

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Author Contributions

NK and TA conceived and designed the experiments. PJ, AT, MR, TS and RA conducted the study. Data analysis and interpretation were done by LSG and NK. The manuscript was written by NK, LSG while TA was critically revised given guidelines. All authors read and approved the final manuscript. NK, LSG and TA are guarantors of the paper.

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