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Evaluation of the Relationship between Nursing Students' Perception of Educational Environment and Academic Engagement in Ahvaz Jondishapur University of Medical Sciences during 2018-2019

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Abstract

Background & Objective: The learning environment plays a key role in the teaching-learning process. This study aimed to evaluate the relationship between nursing students' perception of the educational environment and their academic engagement in Ahvaz Jondishapur University of Medical Sciences, Ahvaz, Iran in 2018-2019.

Materials and Methods: This descriptive-correlational study was performed on all nursing-midwifery students. In total, 291 subjects were selected randomly based on the Morgan table. Data were collected using DREEM and Schaufeli's academic engagement questionnaire (1996). In addition, data analysis was performed using descriptive statistics, Pearson's correlation coefficient, and multiple linear regression.

Results: In this study, the total mean score of perception of the educational environment was reported to be 125.26±12.81 (out of 200), which demonstrated more positive aspects, compared to negative aspects, in the environment. According to the results, the students' perception of the educational environment predicted their academic engagement. According to the regression coefficients, five areas of perception of the educational environment (in the DREEM model) played a significant role in the prediction of students' academic engagement (P<0.01, R2=0.269, R=0.518).

Conclusion: According to the results of the study, it seems crucial to focus on the role of perception of the educational environment in the prediction of students' academic engagement.

Introduction

Academic engagement of students is one of the most important indicators of education quality and academic success. New information is constantly added to relevant fields of universities of medical sciences. Therefore, students must always update their knowledge to achieve success in this area. The academic engagement was first introduced to comprehend and determine academic failure and was considered as a basis for corrective efforts made in the education and learning field (1). Academic engagement is a type of psychological investment and direct effort to increase the quality of learning, understanding, and mastery of knowledge, skills, and arts that form academic activities. In other words, academic engagement is the quality of efforts made by students for targeted educational activities to directly obtain more favorable results (2). Academic engagement is a multidimensional construct and involves behavioral, motivational (emotional) and cognitive dimensions; behavioral engagement is defined as behaviors observed in dealing with assignments and encompass the components of attempts made to do assignments, perseverance, and asking for help from others while doing assignments. On the other hand, motivational engagement is the emotional aspect of assignments and includes the components of feeling, value of assignments, and emotion. Ultimately, cognitive engagement includes different processing procedures used for learning and

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encompasses cognitive and metacognitive strategies (3).

However, some experts have introduced a fourth dimension known as human agency, which is defined as the systematic participation of students in educational activities (4). Agency is a process in which students attempt to create, improve, and personalize learning situations (5). This viewpoint is based on the self-determination theory and evaluates the relationship between the factors affecting academic engagement. As such, there are two main approaches in the research literature related to academic conflict, including the assessment of engagement as a construct affected by variables related to "self" and research on engagement while considering the underlying factors and contextual approach. "Self" or internal variables are individual characteristics such as self-efficacy and autonomy. Contextual variables refer to the external factors affecting students' life, including family support, relationships with peers and classmates, and the educational environment. Nonetheless, some models include both "self" and "contextual" approaches (6, 7).

These models show how the social context perceived by students affect the system of self directly and leads to academic engagement or lack of academic engagement in return. The model can determine several variables related to the self and the content that affect academic engagement. A review of the literature revealed that multiple individual factors, such as cognitive learning (8) and environmental (e.g., educational and supportive behaviors of teachers) strategies (9), family and parental support areas (10), and relationships with peers (11), affect the emotional and cognitive engagement of students in academic activities. Therefore, a supportive environment is a factor affecting engagement. In fact, a proper academic environment can increase academic engagement in students. Overall, academic engagement is a flexible status formed by the educational context (12). This concept will be optimized when students perceive the education environment to be proportional to their own needs (i.e., competency, autonomy, and communications) (13).

In fact, academic engagement is an adaptive concept that can be easily formed through the educational context (6). Students become actively engaged with the education provided in the educational environments to gain knowledge and the skills required so that they could pass various academic paths (14). The academic environment affects academic engagement directly. Students with a positive attitude in the university have specific goals, positive experiences, and proper emotional growth (13). In fact, academic engagement is a communicative mechanism between the environment and academic results. In addition, communication with others increases academic engagement and motivation and academic achievement of students (15). Given the fact that perception is a process used by individuals to regulate and interpret their ideas and perceptions of their environment (16), it can play a key role in the area of academic engagement. Therefore, the lack of attention to this issue can cause educational problems. A suitable educational and learning environment is crucial for presenting high-quality clinical training (17).

There is a clear relationship between the academic environment and valuable consequences, such as satisfaction, level of engagement, and academic achievement of students. Therefore, it is necessary to identify and strengthen the weaknesses of the learning environment to improve the quality of learning (18). Given the effectiveness of the educational environment in training students, the educational planning managers must learn about students' perceptions of educational dimensions and climate due to their effect on educational quality and assessment of educational programs. There are various qualitative and quantitative methods to assess different aspects of the educational environment.

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Specifically, the Dundee Ready Educational Environment Measure (DREEM) instrument is used in medical education environments and various societies and cultures (19). With this background in mind, this study aimed to determine the relationship between the educational environment dimensions (DREEM) and the academic engagement of nursing students in Ahvaz Jondishapur University of Medical Sciences, Ahvaz, Iran.

Materials and Methods

This descriptive, correlational study was performed on all students in the nursing and midwifery school of Ahvaz Jondishapur University of Medical Sciences in the academic year of 2018-2019. In total, 291 students were selected by stratified random sampling method (based on gender). Following receiving an ethical code from the university (IR.AJUMS.REC.1397.182), data were collected using Dundee Ready Education Environment (DREEM) (Roff et al.) and academic engagement questionnaire (Schaufeli *et al.*).

- **DREEM (Dundee Ready Education Environment):** the tool was developed by Roff et al. at the Centre for Medical Education - University of Dundee and its validity was assessed (20). Medical universities can use this instrument to recognize issues and problems in their educational plan. The instrument has two parts: the first part's items are related to individual and underlying characteristics of students, whereas the second part's positive and negative items (n=50) are related to measuring students' perceptions and expectations of the university's learning and teaching environment. The items are scored based on a four-point Likert scale (from completely agree=4 to completely disagree=0). In addition, the items are divided into five areas: students' perception of learning (12 items and a maximum score of 48), students' perception of professors (11 items and a maximum score of 44), students' perception of their academic ability (eight items and a maximum score of 32), students' perception of the educational atmosphere (12 items and a maximum score of 48), and students' perception of social conditions of education (seven items and a maximum score of 28). Moreover, the maximum total score of the instrument is 200, and the higher the score, the more positive and favorable perception of the educational environment. The tool has been used in various studies in the country and its proper validity and reliability have been confirmed (21). In the current research, the instrument's reliability was approved at the Cronbach's alpha of 0.83.

- **Academic engagement questionnaire:** the tool was developed by Schaufeli, Leiter, Maslach & Jackson in 1996 to assess students' engagement in academic activities (22). This 14-item scale has three subscales, including power (five items, when I study, I feel mentally empowered), sacrifice (four items, I have realized that my education is full of meaning and purpose), and attraction (five items, time passes quickly when I study). The tool is scored based on a seven-point scale (from 0 to 6), and the minimum, maximum, and average scores are 0, 84, and 42, respectively. In this regard, higher scores are indicative of higher academic engagement of students. Schaufeli et al. reported the tool's reliability to be 0.86. In addition, the fit indexes showed suitable validity of the scale (23). In the current research, the tool's reliability was confirmed at the Cronbach's alpha of 0.89. Data analysis was performed using descriptive (mean, standard deviation, Pearson's correlation coefficient, and multiple linear regression) and inferential (Kolmogorov-Smirnov test) statistics.

Results

In this study, we evaluated 291 nursing students in the age range of 18-31 years with a mean age of 22.60±3 years. In terms of gender, 68% of the participants were female (n=198) and the rest were male (n=93). Moreover, 74% of the subjects were single (n=215) and other participants were married.

Based on self-report, the mean GPA of the students was 16.57±4.16. According to Table 1, the total mean score of students' perception of the educational environment was 125.26±12.81. In this regard, the positive aspects of students' perception of the educational environment were higher, compared to the negative aspects. Furthermore, students had a positive perception of five areas of academic climate, except for "perception of social conditions" (Table 1).

Table 1: Means and Standards Deviations for Students Perceptions in Educational Environment Areas and Interpretation of themes

Areas	Mean±SD	Interpretation
Students' Perception of Learning	32.21±6.76	A more positive perception
Students' Perception of Teachers	29.30±6.32	Moving in the right direction
Students' Academic Self-Perception	22.36±4.81	Feeling more on the positive side
Students' Perception of Atmosphere	27.22±8.73	A more positive attitude
Students' Social Self-Perception	14.12±4.37	Not a nice place
Overall Perception of Educational Environment	125.26±12.81	More Positive than Negative

Pearson correlation coefficient was used to investigate the simple relationship between the five dimensions of perception of the educational environment with students' academic engagement. The zero-correlation coefficient of two variables is presented in Table 2, according to which a direct, significant correlation was found between the total score of students' perception of the educational environment and academic engagement (r=0.518) (P<0.01). According to the correlation of determination, 26.83% of students' academic engagement was explained by their perception of the educational environment. Among the five dimensions, the area of "perception of one's academic ability" had the highest correlation with the academic engagement (r=0.534), whereas the area of "perception of social conditions" had the lowest correlation in this regard (r=0.267) (P<0.01).

Table 2: Zero-order Correlations among Educational Environment Areas and Academic Engagement

	1	2	3	4	5	6	7
1. Perception of Learning	1						
2. Perception of Teachers	0.239**	1					
3. Academic Self-Perception	0.243**	0.278**	1				
4. Perception of Atmosphere	0.167*	0.101	0.207**	1			
5. Social Self-Perception	0.202**	0.154*	0.208**	0.039	1		
6. **Overall** Perception	0.546**	0.508**	0.527**	0.474**	0.342**	1	
7. Academic Engagement	0.332**	0.424**	0.534**	0.299**	0.267**	0.518**	1
				*P<0.05		**P<0.01	

In this study, we applied simple linear regression to predict students' academic engagement based on their total score of perception of the educational environment. According to the results, students' perception of the educational environment predicted their academic engagement (R=0.518, R2=0.269,

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P<0.01). Accordingly, it could be concluded that the students' perception of the educational environment explained 27% of the variance of academic engagement. Moreover, we simultaneously applied multiple linear regression to determine the share of each dimension of students' perception of the educational environment. In simultaneous multiple linear regression, all predictor variables are entered into the analysis simultaneously and each predictor variable is evaluated based on its own predictive power. Preliminary analysis was performed to ensure that the assumptions of normality, alignment, and homogeneity of variance were not violated. The Z value of the Kolmogorov-Smirnov test and F value of the Levene's test was higher than 0.05, which indicated the normality and homogeneity of variance in the variables. In addition, the reported values for Tolerance (value greater than 0.1) and VIF (value less than 10) indicated that the linearity assumption was not violated.

Table 3: Multiple Correlations among Educational Environment Areas and Academic Engagement

Areas (Predicates)	B	Std. Error	β	T value	Sig.	Tolerance	VIF
Perception of Learning	0.340	0.127	0.129	2.679	0.008	0.878	1.139
Perception of Teachers	0.719	0.136	0.254	5.304	0.001	0.886	1.129
Academic Self-Perception	1.381	0.181	0.373	7.612	0.001	0.847	1.181
Perception of Atmosphere	0.346	0.095	0.169	3.646	0.001	0.941	1.062
Social Self-Perception	0.626	0.247	0.118	2.528	0.012	0.927	1.074
	R: 0.657	R2:0.432		F: 42.537	P<0.001		

According to Table 3, the regression model of the scores of the predictor variables (areas of perception of the learning and educational environment) to the criterion variable (academic engagement) was statistically significant (P<0.001, F: 42.537). The model had a multiple simultaneous relationship between the areas of perception of the learning environment and academic engagement (R=0.657). On the other hand, the multiple coefficients of determination (R2=0.432) showed the ability of predictor variables to explain 43.2% of the changes in the criterion variable significantly. Table 3 illustrates the share of each variable entered into the model. Accordingly, Beta standard values of all five dimensions of perception of the educational environment were significant with respect to t values (P<0.01). In terms of predictability, the dimensions of academic ability and perception of professors' ability played the most role, respectively.

Discussion

Evaluation of a learning-educational environment can be considered as an index in the process of educational quality management to show the effectiveness of educational programs, as well as the academic success and satisfaction of students at various educational stages. The total mean score of students' perception of the nursing educational environment was reported at 125.26±12.12, which indicated the higher level of positive aspects of the

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nursing educational environment from the perspective of students, compared to the negative aspects. In a research, Bakhshi et al. (2013) evaluated nursing students in Rafsanjan University of Medical Sciences, reporting a total mean score of 114.3, which demonstrated the positive viewpoint of students (24). However, Hasanabadi et al. (2014) reported a semi-unfavorable status (89.01±22.74) for medical students' perception of the educational environment in the same university using the DREEM model (25). In another study, the total mean DREEM score of nursing students at Yazd University of Medical Sciences was reported to be 111.1 (26).

Moreover, Farajpoor et al. (2016) reported a mean of 107.05 for nursing students in Islamic Azad University, Mashhad Branch, indicating a positive perception of the educational environment among these individuals (27). It seems that the views of nursing students in universities inside Iran are not much different and the study of the total mean scores showed that the views of nursing students in these universities were relatively positive. Obviously, some aspects could be strengthened. All of these universities have one thing in common, which is a traditional educational system. Therefore, technological changes and globalization are factors that necessitate corrections in the education system, and the system must be turned into a modern educational one.

According to the results of the present study, there was a relationship between students' perception of support received in the educational environment and educational engagement. Students who perceive positive support from the environment show engagement in learning activities that are associated with positive emotions (as well as academic motivation) (28). In fact, the psychological assets of students (e.g., hope, self-efficacy, resilience, and optimism) are stimulated, which leads to a higher engagement of students in academic activities (29). Moreover, environmental support, such as professor-student relations, communication with peers, and positive perception of the educational space, acts as the source of students' academic engagement and growth of their skills in the academic climate (28). The academic-social environment that separates support and belonging and increases negative perceptions of social conditions in students creates low levels of academic engagement in students (30).

In the present study, we found a strong correlation between academic engagement and students' perception of academic ability. This understanding actually reflects the students' self-concept. Having a more positive academic self-concept will result in future academic achievement and growth of the person and lack of emergence of negative emotions. Moreover, positive self-perception and positive academic self-concept can lead to a feeling of self-efficacy, which refers to a person's confidence in their abilities to perform tasks. Individuals with higher imaginary self-efficacy make greater efforts and are more successful. On the other hand, those with lower imaginary self-efficacy show more perseverance and academic commitment and experience less fear and anxiety. Therefore, they have lower academic emotions such as lower academic burnout (31).

One of the major drawbacks of the present study was collecting information through self-report, which might have affected the internal validity of the research. Therefore, it is suggested that the mixed method (qualitative and quantitative) be applied in future studies to yield more accurate results. Another solution is integrating quantitative data with the information obtained from the interviews, evoked reminders, and daily notes. Moreover, the design of the present study, which was correlational, might have limited the possibility of the causal interpretation of the results. On the other hand, the current research was only performed on the nursing students in Ahvaz Jondishapur University of Medical Sciences, which limited the generalization of the results and external validity of the research.

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Furthermore, the academic engagement of the students was assessed in the form of a total score. As such, it is suggested that similar tools be applied to evaluate the dimensions of academic engagement separately.

Conclusion

According to the results of the present study, the educational environment explained 28.83% of students' academic engagement. Recognizing and strengthening the areas of the educational environment provides important predictors in determining the extent of students' academic engagement. Therefore, it is recommended that a type of educational environment be provided to meet students' needs for competence and capability. In addition, students must be able to participate in academic affairs at the university. It is suggested that students be allowed to express their opinions about the rules to be involved in the university's affairs. Moreover, the foundation must be laid for establishing a friendly student-professor and student-student association, and a sense of support be increased in the students. All of these factors will increase the positive emotional correlation in students and their academic engagement in educational environments.

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Conflicts of Interest: The authors declare that there are no conflicts of interest.

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