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Original Research

Academic burnout among undergraduate nursing students: Predicting the role of sleep quality and healthy lifestyle

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Abstract

Background: Academic burnout is a serious threat that can affect any student's academic life, especially nursing students. Sleep quality and a healthy lifestyle are variables are related to academic burnout. This study aimed to predict undergraduate nursing students' academic burnout based on sleep quality and lifestyle.

Methods: The study was descriptive and correlational in design. The statistical population included all undergraduate nursing students of the Razi School of Nursing and Midwifery at the Kerman University of Medical Sciences (Kerman, Iran; 2016-2017 academic year). Of 270 students,143 students were selected using a random cluster sampling method. The Academic Burnout Questionnaire, the Pittsburgh Sleep Quality Index (PSQI), and the LifeStyle Inventory were used to collect data. A linear regression analysis using the enter method was employed for data analysis.

Results: There was a significantly positive correlation between students' academic burnout and total PSQI score ($P=0.000$, $r=0.547$) and some of its sub-scales, including subjective sleep quality ($P=0.000$, $r=0.607$), sleep latency ($P=0.019$, $r=0.196$), sleep duration ($P=0.014$, $r=0.206$), sleep disturbance ($P=0.000$, $r=0.346$), and daytime dysfunction due to sleepiness ($P=0.000$, $r=0.654$). Conversely, the relationship between students' academic burnout and healthy lifestyle was negatively significant ($P=0.000$, $r=-0.507$). Thus, the potential for undergraduate nursing students' academic burnout can be predicted by sleep quality and lifestyle ($P=0.000$, $F=23.480$).

Conclusions: By improving sleep quality and living a healthier lifestyle, students may be less likely to experience academic burnout.

Introduction

Historically, most studies around the concept of "burnout" have been conducted in work-related backgrounds.[1] However, this concept has recently been extended to academic contexts as "academic burnout".[1-2] Academic burnout is characterized as a type of negative attitude or behavior towards education.[3] Academic burnout is caused by anxiety and decreases the amount of energy and concentration available for cognitive tasks related to training[4]. It manifests itself through feelings of exhaustion due to academic demands (emotional exhaustion), having a cynical and detached attitude towards academic demands (cynicism) and feeling incompetent as a student (inefficiency).[5-6] Generally, students working in health-related fields, particularly nursing students, are the most vulnerable to academic burnout.[3-7] One study showed that approximately 40% of nursing students had experienced academic burnout.[8] Another study found a high rate of academic burnout among students, where 23.5%, 16.7%, and 17.9% had high levels of emotional exhaustion, cynicism, and reduced academic efficacy, respectively.[9] Depressed mood, behavioral problems, and academic failures are the most common consequences of academic burnout.[10] Most victims of academic burnout feel little desire for academic achievement and experience a high inclination towards classroom absence and dropping out as well.[11]

With respect to the literature, sleep quality is closely associated to many students' problems, in both health or academic contexts.[12] Increased health concerns,

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irritability, chronic fatigue, attention problems, depressed mood, unsatisfactory academic progress, and academic failures are prevalent among students with sleep disorders.[12] Moreover, many studies have indicated a direct relationship between academic burnout and sleep quality.[13-14] In one study, it was found that exhaustion as a component of academic burnout is significantly correlated to poor sleep quality, disengagement (composed of cynicism and inefficacy), and daytime dysfunction due to sleepless.[15] Another study also indicated a positive correlation between academic burnout and sleep quality.[1] Gruber et al. found that participation in a sleep education program yielded improvements in academic performance and sleep quality.[16]

In addition to the undeniable relationship between sleep quality and academic burnout, a healthy lifestyle appears to be necessary to attain good sleep. A healthy lifestyle, in general, requires a well-balanced diet, regular physical activity, and the smoking cessation.[17] Based on the research, those who maximize healthy lifestyle behaviors reduce the risk of dangerous and chronic diseases such as cardiovascular disease, stroke, diabetes, and various kinds of fatal cancers.[18] While there is supposed to be an increase in students' knowledge of healthy lifestyle behaviors during academic life, there is a general lack of health-promoting or disease-prevention behaviors among nursing students.[13] This means that nursing students do not always adhere to health-promoting lifestyles[19] at a rate one might expect based on their education. This negligence in adopting health-promoting lifestyles can be associated with several consequent problems: anxiety, gastrointestinal upset, headache, insomnia,[20] daytime sleepiness, and morning tiredness.[21]

Although some studies have investigated the relationship between sleep quality and lifestyle with burnout, those studies have mainly focused on employed/graduated nurses rather than undergraduate students; and instead of academic burnout, they have been conducted around employment burnout. In contrast, fewer studies have been conducted with undergraduate nursing students. Therefore, this study helps address a paucity of research among undergraduate nursing students, since academic burnout in undergraduate nursing students can harm the students' mental health in various ways and pave the way for future job burnout. Hence, this study aimed to predict undergraduate nursing students' academic burnout based on sleep quality and lifestyle.

Material and Methods

This study used a descriptive and correlational design. The statistical population included all undergraduate nursing students of the Razi School of Nursing and Midwifery at the Kerman University of Medical Sciences (Kerman, Iran; 2016-2017 academic year). Of a total of 250 students, 165 students (10% more than the suggested sample size) were identified as participants. The sample size was calculated using Krejcie and Morgan's sample-size table (confidence = 95%, margine of error = 0.05%); sampling was performed using a random cluster sampling method. For sampling, each of 10 available classrooms was considered a cluster. In each cluster, students were invited to participate in the research. The study instruments were then randomly delivered to over 50% of interested students. After collecting the completed instruments, 12 incomplete questionnaires were excluded from the analysis. Data analysis was performed with 143 participants in all. A linear regression analysis using the enter method also employed for data analysis. Criteria for entering the research were: being a nursing student; no history of known psychiatric disorders; and filling out an informed consent form. To observe ethical considerations, participation in the study was completely optional, and participants were free to leave at any time. As mentioned, informed consent was obtained from participants, and no names were collected and the instruments were coded to ensure that the participants were not identified and could answer freely. The study was registered with and approved by the Research Ethics Committees of the University of Mazandaran (Approval ID: IR.UMZ.REC.1400.007).

Measures

Academic Burnout Questionnaire

This questionnaire was developed by Breso et al. (1997) to measure academic burnout using a 5-point Likert scale. The questionnaire has three subscales: academic exhaustion (5 items; score range: 5 to 25), cynicism (4 items; score range: 4 to 20), and academic inefficiency (6 items; score range: 6 to 30). It has 15 total items, and the total possible score ranges from 15 and 75.[6] The reliability of the original version of the questionnaire has been estimated at 70%, 82%, and 75% for the academic exhaustion, cynicism, and academic inefficiency subscales, respectively.[1] The reliability of the Persian version of the questionnaire (calculated using Cronbach's alpha) is also reported to be 0.70, 0.82, and 0.75 for exhaustion, cynicism, and inefficiency subscales, respectively.[22] Azizi Abargooi reported the total reliability of the questionnaire as 0.87.[23] In one study, Naami assessed the validity of this instrument by calculating the correlation coefficients of the instrument with the Student Stress Questionnaire.[24] The obtained values were 0.79, 0.82, and 0.75 for academic exhaustion, cynicism, and academic inefficiency, respectively. The internal consistency method was used to calculate the instrument's reliability in this study. Cronbach's alpha for the total score was 0.81, and its subscales, i.e., exhaustion, cynicism, and inefficiency, were 0.75, 0.85, and 0.85, respectively.

Pittsburgh Sleep Quality Index (PSQI):

This instrument contains 19 self-reported items combined to form seven component scores. The focus of each item is on the person's sleep quality over the last month. Each

item is scored on a 4-point Likert scale (from 0 to 3, with 0 representing no difficulty and 3 representing severe difficulty), and the total possible score ranges from 0 to 21. The higher scores indicate inferior sleep quality, and a total score of over five is associated with poor sleep quality.[23] Subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleep medication, and daytime dysfunction due to sleepiness are the seven components of the instrument.[25] The reliability and validity of the instrument were verified via a registered study conducted at Tehran Institute of Psychiatry.[26] In that study, the calculated reliability was equal to 0.83, and the calculated validity was between 0.86 and 0.89. In addition, Mohammad Gholi Mezerji et al employed a panel of nine experts in psychology and health education to assess the validity of the instrument.[27] They observed excellent values for the Item Content Validity Index (≥0.78) and the Scale Content Validity Index (≥0.90) in their study. In the current study, the reliability of the instrument was calculated by the internal consistency method. The obtained values of Cronbach's alpha coefficient for all the subscales were in an acceptable range (from 0.71 to 0.94).

Lifestyle Inventory

This instrument was constructed by Miller and Smith and consists of 20 items.[28] On a 5-point Likert scale, respondents are required to rate the frequency with which they adopt 20 positively stated lifestyle habits.[29] A higher score is indicative of a healthier lifestyle.[30] The manufacturers have used Cronbach's alpha and test-retest for assessing reliability and have reported the corresponding values as 0.77 and 0.75, respectively.[31] This instrument has good psychometric properties in Iranian studies. For instance, the test-retest reliability of the instrument has been reported as 0.86.[31-32] A group of faculty members from the School of Nursing and Midwifery of Khorasgan University approved the face and content validity of the instrument.[31] The reliability of the instrument was calculated in the current study (using the internal consistency method), and Cronbach's alpha was equal to 0.81.

Results

A total of 143 undergraduate nursing students participated in this study. Of these, 91 (63.6%) were female and 52 (36.4%) were male. Twenty (14%) were freshmen, 28 (20%) were sophomores, 39 (27%) were juniors, and 56 (39%) were seniors. Sixty (42%) lived in dormitories and 83 (58%) lived at home with their parents. A majority of students (86; 60%) had poor sleep quality, defined as a total PSQI score over 5. The mean age of the students was 22.85±2.4 years. Table 1 shows the descriptive statistics of the variables of the study.

Pearson's correlation was used to explore the relationship between the variables. Before that, the assumptions of the test were met. The output of the Kolmogorov-Smirnov test permitted the application of parametric tests (significant at p>0.05).

As Table 2 shows, while there was a significant positive correlation between students' academic burnout and total PSQI score ($P=0.000$, $r=0.547$) and some of the sub-scales, including subjective sleep quality ($p=0.000$, $r=0.607$), sleep latency ($P=0.019$, $r=0.196$), sleep duration ($P=0.014$, $r=0.206$), sleep disturbance ($P=0.000$, $r=0.346$) and daytime dysfunction due to sleepiness ($P=0.000$, $r=0.654$), the relationship between students' academic burnout and healthy lifestyle was negatively significant ($P=0.000$, $r=-0.507$). Meanwhile, the obtained correlation between students' academic burnout and variables such as sleep efficiency ($P=0.657$, $r=0.037$) and use of sleep medication ($P=0.094$, $r=0.141$) was not significant. To predict students' academic burnout based on sleep quality and lifestyle, a linear regression analysis (via the eEnter method) was employed.

As Table 3 shows, the regression model is statistically

Table 1. Descriptive statistics (N = 143)

Variables	Sub-Scales	Mean	SD	Min	Max
Sleep quality	Subjective sleep quality	1.02	0.9	0	3
	Sleep latency	0.85	0.87	0	3
	Sleep duration	1.54	0.93	0	3
	Sleep efficiency	0.16	0.36	0	1
	Sleep disturbance	1.27	0.88	0	3
	Use of sleep medication	0.36	0.56	0	2
	Day dysfunction due to Sleepiness	0.77	0.97	0	3
	Total PSQI score	5.97	3.55	1	16
Healthy lifestyle	Healthy lifestyle	58.92	10.97	35	88
Academic burnout	Exhaution	11.02	2.98	5	17
	Cynicism	6.38	2.13	4	14
	Inefficiecy	10.59	3.25	6	18
	Total academic burnout	27.87	5.56	17	40

significant ($P=0.000$, $F=23.480$), meaning that some predictor variables can predict academic burnout among participants.

As can be seen from Table 4, subjective sleep quality($P=0.001$, $\beta=0.289$), sleep disturbance ($P=0.001$, $\beta=0.260$), daytime dysfunction due to sleepiness ($P=0.001$, $\beta=0.423$) and healthy lifestyle ($P=0.041$, $\beta=-0.145$) significantly predicted nursing students' academic burnout. These variables accounted for 58% of academic burnout variance (see Table 3).

Discussion

This study was conducted to ascertain the ability to predict undergraduate nursing students' academic burnout based on sleep quality and healthiness of lifestyle. The study showed a significant positive correlation between students' academic burnout and sleep quality. Because a higher score in the PSQI indicates more significant problems with sleep quality, it can be assumed that students who had poor sleep quality also had higher levels of academic burnout. This raises a question: how does academic burnout in undergraduate nursing students relate to poor sleep quality? It is likely that a major part of the answer lies in the nature of the nursing field itself. Nursing students, unlike students in many other fields, experience specific stressful situations such as a busy academic life, standing for extended periods of times during training, working night shifts, observing patients' pain and trauma, and so forth, which can impose a great deal of stress on these students.[33] High levels of stress can interrupt the process of normal sleep and lead to sleep deprivation[34,35]. Undoubtedly, students with inadequate sleep or poor sleep quality cannot concentrate as well on their lessons or learn them properly.[35] Moreover, if sleep problem becomes persistent, accumulation of chronic stress overwhelms students, leading them to academic stress[35] and eventually to academic burnout.[35-36] Additionally, since nursing students undergo unwanted changes in their sleep habits, accumulation of sleeplessness combined with insupportable stress does not let them easily get rid of academic burnout.[15]

In line with some previous studies, the current study also showed a negative relationship between students' academic burnout and a healthy lifestyle,[13-19,37] meaning that having a healthy lifestyle is associated with a lower rate of academic burnout.[13-19,38] As mentioned earlier, contrary to common belief, increasing nursing students' awareness of healthy lifestyle habits during formal education does not necessarily lead to their adherence to a healthy lifestyle.[19] Many nursing students reported insufficient sleep, poor eating habits, and no regular exercise.[13] However, those students who are able adhere to public health recommendations or who spend their spare time doing activities that are part of a healthy lifestyle tend to have lower academic burnout scores.[36] Due to the inverse relationship between a healthier lifestyle and academic burnout, it can be maintained that a healthy

Table 2. Pearson's correlation for academic burnout, sleep quality, and healthy lifestyle

Variables	Academic burnout	
	Correlation coefficient	Significance
Subjective sleep quality	0.607	0.000
Sleep latency	0.196	0.019
Sleep duration	0.206	0.014
Sleep efficiency	0.037	0.657
Sleep disturbance	0.346	0.001
Use of sleep medication	0.141	0.094
Day dysfunction due to sleepiness	0.654	0.000
Total PSQI score	0.547	0.000
Healthy lifestyle	-0.507	0.000

Table 3. Regression model summarhy for predicting academic burnout based on sleep quality and lifestyle

Model	R	R-Square	Adjusted R-Square	Standard Error	F	Significance
Regression	0.764	0.584	0.559	3.696	23.480	0.000

Table 4. Regression coefficients of academic burnout based on sleep quality and lifestyle

Constant	B	Standard Error	Beta	T	Significance
	27.620	2.502		11.040	0.001
Subjective sleep quality	1.786	0.501	0.289	3.564	0.001
Sleep latency	-0.226	0.533	-0.036	-0.425	0.672
Sleep duration	-0.428	0.424	-0.072	-1.010	0.314
Sleep efficiency	-0.947	1.087	-0.063	-0.871	0.385
Sleep disturbance	1.642	0.360	0.260	4.565	0.001
Use of sleep medication	-0.539	0.664	-0.054	-0.812	0.418
Day dysfunction due to sleepiness	2.410	0.458	0.423	5.261	0.001
Healthy lifestyle	-0.073	0.036	-0.145	-2.062	0.041

lifestyle is no more than some simple habits such as regular physical activity, strength training, fruit and vegetable consumption, and good sleep quality.[36] These simple habits can affect students' academic burnout in different ways: physical activities can enhance students' executive function,[37] shield them from conditions such as depression, anxiety, and burnout, reduce their academic stress, and consequently protect them from academic burnout.[39] Enhancement of sleep quality can improve students' academic performance via increasing vigilance, concentrating their attention, and improving their mental readiness.[16] Taking a good nutritional regimen into consideration as a critical factor of any healthy lifestyle can substantially influence both the development and health of the brain and its function. As a part of every healthy lifestyle, a good nutritional regimen is critical for improved cognition and academic performance because it provides good building blocks for the brain to create and maintain connections.[40]

Strengths and limitation

One of the most significant strengths of this study was that it demonstrated that academic burnout, which is one of the most important factors affecting nursing students' current and future performance, can be reduced. This goal can be accomplished by providing students with training on prioritizing quality sleep and adopting healthier lifestyles. The most critical limitation of this study was the lack of segregation between male and female students and between freshmen, sophomores, juniors, and seniors in the analysis. Future studies may be indicated to see if there are gender differences or if class level makes a difference.

Conclusion

The findings of the study indicated that sleep quality and a healthier lifestyle can predict undergraduate nursing students' academic burnout. By improving sleep quality and living a healthier lifestyle, students are less likely to experience academic burnout.

Competing interests

There is no conflict of interest between the authors and the current study.

Ethical approval

To observe ethical considerations, participation in the study was completely voluntary, and the participants could withdraw from the study at any time. As mentioned, informed consent was obtained from participants, and the instruments contained no personally identifiable information and were coded to ensure that the participants answered voluntarily and freely. The study was registered and approved by the Research Ethics Committees of the University of Mazandaran (Approval ID: IR.UMZ.REC.1400.007).

Author Contributions

All authors have participated in the current study: Habibollah Naderi and Hamidreza Dehghan participated in choosing the research topic. Hamidreza Dehghan participated in data collection, Ms. Shahrbanoo Dehrouyeh participated in data analysis, and Ms. Elaheh Tajik and other authors contributed to the article, and Hamidreza Dehghan was responsible for answering the judgments.

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