Original Article

Academic Burnout and Its Relationship with Employment Hope among Health Sciences Students

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Abstract

Background & Objective: The study of academic burnout and its predictors as one of the main challenges of the educational system is of great importance. This research was conducted to investigate and explain the role of hope for employment and its subscales in predicting academic burnout.

Materials & Methods: All health sciences students at Ilam, Arak, Birjand, Semnan, and Hamedan Universities of Medical Sciences, Iran, in 2019 were examined in this descriptive-correlation study. The samples were selected using a stratified random sampling method (n=400). The required data were gathered using the Academic Burnout Questionnaire (developed by Berso et al.) and the Qureshi Rad Employment Hope Questionnaire. The collected data were analyzed in the SPSS-20 software using an independent t-test, one-way ANOVA, and simple and multiple linear regressions.

Results: The results of the study showed that 2.3%, 61.3%, and 36.5% of students suffered from low, medium, and high levels of academic burnout, respectively. The mean ± SD of the hope for employment score was 55.69±14.61, indicating a moderate level of hope for employment among the study participants. Based on the study results, 8.4% of the variance of academic burnout could be predicted by hope for employment ($F=37.58$, $R=0.298$, $R^2=0.086$, adjusted $R^2=0.084$, $P<0.001$).

Conclusion: The study findings revealed the positive effect of hope for employment on academic burnout. In addition to reducing academic burnout, interventions focused on increasing employment hope can also improve the academic performance of health sciences students.

Introduction

As the most important scientific and educational institutions, universities play a critical role in training efficient human resources. The students may experience various academic, social, and personal challenges during their university studies, which may cause considerable stress. Therefore, students and education officials need to pay attention and adopt different strategies to be able to adapt to these conditions (1).

Academic burnout is one of the challenges related to students' study periods (2). Academic burnout is defined as a psychological syndrome that is characterized by gradual emotional exhaustion, loss of motivation, and diminished enthusiasm that occurs as a result of factors, such as the pressure and time constraints associated with completing assignments and educational tests, as well as the lack of resources needed to perform the assigned tasks and the uncertainty related to future employment opportunities (3, 4). It is noteworthy to mention that this syndrome was initially thought of as a job-related problem (job burnout syndrome); however, evidence later revealed that it can also affect students (5).

The results of a study conducted on health students at Mashhad University of Medical Sciences, Mashhad, Iran, revealed that approximately 87% of the students suffered from moderate or severe

academic burnout (6). Furthermore, based on the findings of another study performed on students at Qom University of Medical Sciences, Qom, Iran, academic burnout is more prevalent in public health and nursing students than in other medical science fields (7). In addition, more and more evidence indicates that academic burnout is prevalent among health sciences students (8).

Burnout starts with long-term stress and is accompanied by various psychological and physical symptoms (9) that can negatively influence a student's physical and mental health and result in various disorders and health problems, including headaches, abdominal pain, sleep disorders, disturbances in nutrition and physical movement, fear, depression, and substance abuse (10, 11). Additionally, academic burnout can adversely affect the students' cognitive performance, enthusiasm and interest in learning course materials, and participation in class activities, which not only have a negative impact on their academic performance but also can increase their desire to abandon their academic studies (12-14). Moreover, academic burnout in addition to affecting performance during study at the university, impacts the job capabilities of graduates of medicine and healthcare majors, resulting in a gradual decline in career motivation and desire to leave the service, which, apart from wasting the country's human resources, endangers public health (15, 16). In light of the high prevalence of academic burnout among health science students, it is one of the most challenging issues facing the healthcare education system (6, 8). However, to the best of our knowledge, few studies have been conducted on this topic with an emphasis on health science students.

One of the factors affecting academic burnout is hope for employment; however, it has received little research attention. Hope for employment is a psychological variable derived from the hope theory. Based on this theory, human behavior is entirely purposeful (17). Goals, paths to achieving goals, and agents are the main variables in this theory. The agent is defined as the desire and motivation of people to try to reach attainable goals (18). Hope for employment is defined as a state of positive motivation that affects setting career goals, having ideas and plans, and being motivated to achieve those goals (19). It is worth mentioning that, in addition to having a job and an income, other factors, such as being interested in the job, the amount of time allocated for job activities, occupational prestige, and facilities in the community related to the job, are also considered as the variables of hope for employment (20, 21). Ajam Ekrami et al. conducted a study at Shahroud University of Medical Sciences, Shahrud County, Iran, the results of which were indicative of the existence of a negative and significant correlation between employment hope and academic burnout (22). In addition, the findings of other studies have shown a negative and significant correlation between employment hope and academic burnout among non-medical students (23-25). The hope for employment impacts academic burnout, and consequently, academic performance and the ability of the university to educate efficient healthcare professionals. Therefore, it is necessary that education policymakers investigate the effect of this factor on academic burnout before planning educational interventions or reviewing the establishment of health science fields. Since to the best of our knowledge, there are no studies in this field in Iran, this study was conducted to investigate the role of hope for employment and its subscales in predicting academic burnout among health sciences students.

Material & Methods

The current cross-sectional study was conducted in 2019. Statistical samples were collected from all undergraduate students of the universities of medical sciences in Arak, Ilam, Semnan, Birjand, and Hamadan cities, Iran, who studied public health, occupational health and safety engineering, and environmental health engineering. Based on the estimated sample drop-out rate of 10%, the statistical power of 95%, the error level of 0.05, the standard deviation of 17.37, and the precision of 3.13, the sample size was determined as follows (6):

$$n_{0=} \frac{(z_{1-\alpha/2} + z_{1-\beta})^2(\sigma)^2}{(d)^2} = \frac{(1.96 + 1.64)^2(17.37^2)}{(3.13)^2} = 399.13 \cong 400$$

$$n_0 = n_0 \times \frac{1}{1 - 0.1} = 444.4 \cong 445$$

Considering the possibility of sample attrition, another 30 samples were added to the calculated sample volume; accordingly, the total number of samples was set at 475. Afterward, from the studied population, participants were selected by stratified random sampling method. The number of health sciences students of Arak, Ilam, Semnan, Hamadan, and Birjand universities of medical sciences was 301, 337, 297, 373, and 342, respectively. The current study considered the universities as classes. Subsequently, 97, 87, 86, 107, and 98 samples were allocated to the universities, as mentioned earlier, according to the probability proportional to the sample size. Following that, for each university, based on the number of students in each field of study as a class, the sample size was allocated to each class based on the number of students in that

class. As a final step, one entry was randomly selected from each field of study as a class, and then participants were randomly chosen using R version 3.4. The inclusion criteria were lacking an experience of severe stress (e.g., the death of a loved one, divorce, or other major life changes) and being a student during the study period. Out of all distributed questionnaires, 400 questionnaires were wholly completed and analyzed (84.2% response rate).

The required data were collected using the demographic form, which included such information as age, gender, marital status, and field of study, and the Persian version of the academic burnout and employment hope questionnaires. The 15-item Academic Burnout Questionnaire, developed by Berso et al., was used in this study to measure academic burnout in three subscales, namely emotional exhaustion (5 questions), academic apathy (4 questions), and academic inefficiency (6 questions). The responses are rated on a 7-point Likert scale (from 1=never to 7=always). Factor analysis proved that the questionnaire was valid. Furthermore, for the three subscales of academic burnout, the reliability was calculated at 0.70, 0.82, and 0.75, respectively (26). Moreover, Naami evaluated the reliability of this questionnaire and reported that it was statistically reliable for the subscales of emotional exhaustion, academic apathy, and academic inefficiency (27). In addition, the reliability and validity of this instrument have been confirmed in other studies (28, 29). In the present study, the reliability of this questionnaire was confirmed with Cronbach's alpha coefficient method (α=0.81).

In this research, the 20-item Qureshi Rad Employment Hope Questionnaire was employed to investigate the hope of employment. This tool assesses hope for employment in five subscales, including interest in the field of study (4 questions), income (5 questions), occupational prestige (3 questions), employment waiting time (3 questions), and the facilities available in the community (5 questions), are scored on a 6-point Likert scale. The validity and reliability of this questionnaire have been confirmed in a study by Qureshi Rad (30). Furthermore, the reliability of this instrument was confirmed in the present study using Cronbach's alpha coefficient method (α=0.78).

Regarding the ethical considerations, the research objectives were explained to all individuals, and they were informed of the right to leave the study at any time. Moreover, all participants were assured of anonymity and confidentiality in this study.

The collected data were analyzed in SPSS software (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp) through descriptive statistics, such as frequency and mean ± SD, and inferential statistics, such as the independent samples t-test (to compare the mean scores of academic burnout and employment hope in the gender variable) and one-way ANOVA (to compare the mean scores of academic burnout and employment hope in the study field and university variables). Additionally, simple and multiple linear regression models (simultaneous models) were employed to predict students' academic burnout based on the variable of hope for employment and its subscales. Statistical significance was considered at the p-value < 0.05.

Result

The participants of the current study consisted of 294 (73.5%) females and 106 (26.5%) males with a mean age of 21.95±3.49 years. Furthermore, 337 (84.3%) of the respondents were single, while 63 (15.8%) were married. Regarding the field of study, 114 (28.5%) students were studying in the majors of environmental health engineering, 121 (30.3%) in public health, and 165 (41.3%) in occupational health and safety engineering. The overall mean score of academic burnout was obtained at 57.85±10.34, and it was revealed that 9 (2.3%), 245 (61.3%), and 146 (36.5%) students had low, medium, and high levels of academic burnout, respectively. The results of the mean scores of academic burnout and its subscales scores are presented in Table 1.

Table 1. Mean of academic burnout and its subscales (n=400)

Subscales	Max. Score	Mean±SD
Emotional exhaustion	35	5.81±18.08
Apathy	28	13.95±5.56
Academic inefficiency	42	25.82±5.57
The overall score of academic burnout	105	57.85±10.34

According to the findings of the study, the overall mean score of academic burnout and its three subscales was not significantly different between the male and female students (58.01±10.75 vs. 57.79±10.21). It was also found that there were no significant differences in academic burnout scores and its subscales between the fields of study based on the results of the one-way ANOVA test (Table 2).

Table 2. Mean of academic burnout and its subscales by the fields of stud

Subscales	Public health	Occupational health and safety engineering	Environmental health engineering	F	P-value
Emotional exhaustion	5.8±18.26	6.05±17.35	5.36±18.92	2.57	0.078
Apathy	5.16±13.9	5.93±13.6	5.43±14.5	0.88	0.413
Academic inefficiency	5.47±25.03	5.65±26.49	5.47±25.69	2.44	0.088
The overall score of academic burnout	10.15±57.2	10.83±57.44	9.77±59.12	1.22	0.296

Based on the results, academic burnout and its subscales were significantly different between universities. Furthermore, the results of pairwise comparisons (post hoc test) revealed a significant difference in the mean academic burnout scores between Arak and Ilam universities and Birjand and Semnan universities. The results of the scores of academic burnout and its subscales at the studied universities are summarized in Table 3.

Table 3. Mean of academic burnout and its subscales by the studied universities

Subscales	Ilam	Arak	Birjand	Semnan	Hamadan	F	P-value
Emotional exhaustion	6.37±17.64	5.31±16.34	6.01±18.22	5.1±19.69	5.9±18.26	3.82	**0.005**
Apathy	5.86±13.68	4.67±12.28	5.53±14.54	5.4±14.1	6.03±15.22	3.14	**0.015**
Academic inefficiency	6.04±24.54	5.6±26.61	5.7±26.85	4.91±26.33	5.33±24.61	3.21	**0.013**
The overall score of academic burnout	11.92±55.88	9.72±55.24	10.11±59.62	8.18±60.14	11.08±58.1	3.77	**0.005**

*The parameters that reached the significance level ($p<0.05$) are displayed in bold.

According to the findings of the study, the employment hope score was estimated at 55.69±14.61. Moreover, male participants had higher employment hopes (58.92±14.86, t=2.37, P=0.018) than their female counterparts (54.52±16.8). Based on the results of the one-way ANOVA test, there was a significant difference between the students who studied health fields (F=11.12, P=0.001). In addition, comparisons (post hoc test) revealed that students who studied occupational health and safety engineering had a higher hope for employment than students who studied environmental health engineering (P=0.001) or public health (P=0.01). The results indicated that the hope of employment differed significantly depending upon the university where the student studied. Moreover, the results of pairwise comparisons (post hoc test) showed that the students at Arak University of Medical Sciences had more hope for employment than their counterparts at other studied universities.

In the present study, a simple linear regression analysis was used to predict students' academic burnout in relation to their hope for employment. It was found that 8.4% of the variance of academic burnout could be explained by hope for employment (F=37.58, R=0.298, R2=0.086, adjusted R2=0.084, P<0.001). Notably, there was a significant negative correlation between academic burnout and hope for employment (Table 4).

Table 4. Results of regression analysis to predict academic burnout based on hope for employment

Criterion variable	predictor variables	Not standardized coefficients		Standardized coefficients	t	P-value
		B	Std. Error	Beta		
academic burnout	**Constant**	68.166	1.754	-	38.837	**≤0.001**
	Overall score of hope for employment	- 0.185	0.031	- 0.294	- 6.131	**≤0.001**

*The parameters that reached the significance level (p<0.05) are displayed in bold.

Furthermore, a multiple regression (simultaneous model) was employed to predict students' academic burnout based on the subscales of hope for employment. The findings showed that 8.2% of the variance of academic burnout could be explained by the subscales of hope for employment (F=8.112, R=0.306, R^2=0.093, adjusted R^2=0.082, P<0.001). However, based on the regression coefficients associated with the role of each subscale of hope for employment in predicting academic burnout, only the subscales of facilities in society and income were significant predictors (Table 5).

Table 5. The results of the multiple regression analysis to predict academic burnout based on the subscales of hope for employment

Criterion variable	predictor variables	Not standardized coefficients		Standardized coefficients	T	P-value
		B	Std. Error	Beta		
academic burnout	**Constant**	67.052	1.985	-	23.778	**≤0.001**
	Interest in the field of study	- 0.137	0.182	- 0.572	-0.754	0.451
	Income	- 0.235	0.121	- 0.114	-1.761	**0.045**
	Occupational prestige	0.183	0.239	0.047	0.768	0.345
	Employment waiting time	-0.217	0.268	- 0.631	-0.811	0.312
	Facilities in society	- 0.332	0.129	- 0.141	-1.953	**0.041**

*The parameters that reached the significance level (p<0.05) are displayed in bold.

Discussion

This study was designed and implemented to examine the role of hope for employment and its subscales in predicting academic burnout among students in health sciences. The study results indicated that the mean overall score of academic burnout was 57.85±10.34 among the investigated students; regarding this, 2.3%, 61.3%, and 36.5% of the subjects had low, moderate, and severe burnout, respectively. Overall, the results revealed a high prevalence of academic burnout among the study population.

The findings of a study conducted by Zargar et al. showed that the mean overall score for academic burnout was 57.52±17.36 and that 87% of the health students in Mashhad University of Medical Sciences, Mashhad, Iran, suffered from moderate and severe academic burnout (6), which was consistent with the results of the current study. Aside from the study by Zargar et al. (6), no other research has examined academic burnout in health students; regarding this, it is impossible to compare the results of this research with those of other studies. The findings of research conducted on other medical students, such as the study performed by Aghajari et al. on nursing students of Shahid Beheshti University of Medical Sciences, Tehran,

Iran, revealed that the mean score of academic burnout was 44.9±2.4 and that 71.3% and 10.8% of students experienced moderate and severe academic burnout, respectively, which was not consistent with the findings of the present study (31). Furthermore, the results of the present study are incontinent with those of another survey performed on the paramedical students of Birjand University of Medical Sciences, Birjand, Iran, in which the overall burnout score was 40.56±8.5 and 87% of the students had moderate academic burnout and 9% experienced severe academic burnout (32). It is evident that health sciences students have relatively higher levels of academic burnout compared to those in other fields of medicine, based on the results of the studies mentioned above (31, 32) and those of other studies conducted in different parts of Iran, including Ghadampour et al. at Lorestan University of Medical Sciences (33), Sharifi Fard et al. at Qom University of Medical Sciences (34), and Mahmoudi et al. at Shiraz University of Medical Sciences (35). Various factors may contribute to academic burnout, such as the nature of the field of study, the number and difficulty of classroom units, the stress associated with completing academic assignments, and the uncertainty of graduates' career prospects (23, 36). Due to the engineering nature of environmental health and occupational health and safety engineering and the requirement for passing a large number of math and computing course units during the study period, this group of students faces a high level of academic pressure, which may contribute to a relatively high level of academic burnout among health students. In another research, Shikholeslami et al. reported a negative relationship of such variables as hope for employment, interest in the field of study, occupational prestige, income, and facilities available in society with academic burnout (23). In some non-industrial provinces of Iran, there are very few employment opportunities for occupational health and safety graduates due to the asymmetric distribution of industrial units. Therefore, this variable can be another contributing factor to higher academic burnout among health science students. Several other variables can affect the burnout levels of students, including age (37, 38), educational degree (39, 40), years of study (38, 41), extracurricular activities of the studied individuals (e.g., sports and music activities) (8, 42), quality and scholarly atmosphere of universities (43), social support (3, 44, 45), personality type (46), and cultural and social differences of the studied population (38, 47). The tool used to evaluate academic burnout could also explain the differences in the results of different studies on academic burnout. Some researchers have conducted their studies using an initial measure of academic burnout that combines two subscales, namely emotional exhaustion and pessimism. Additionally, the general form of burnout questionnaires, which is not specific to students, has been used in some other studies (7, 27, 48). Nevertheless, the questionnaire developed by Bresso et al., which measures emotional exhaustion, apathy, and academic inefficiency, was used in the present study (26).

The results of a study conducted by Talili et al. outside of Iran reported that academic burnout was about 64.4% prevalent among health science students, which was somewhat in line with the findings of the current study (8). The prevalence of academic burnout has been reported to be between 7% and 75.2% in medical science fields outside Iran (8, 48-51). The discrepancies in the results of the studies can be explained by different variables, including the type of field and educational degree (39, 40), the quality and scholarly atmosphere of universities in different countries (43), the approaches and tools used to measure academic burnout (27, 52), and cultural and social differences in the studied societies (38, 47).

In the present study, no significant difference was observed between male and female students in the overall score of academic burnout and its three subscales. This finding was consistent with the results of a study by Zargar et al. (6). Similar results were also obtained by Backović et al. (53), Sharifi Rad et al. (34), Sharif Shad et al. (54), Yu and Chae (55), and Palupi and Findyartini (56). This issue can be explained by pointing out that all students face the same conditions, such as the atmosphere of educational environments, stress factors (e.g., insufficient time for accomplishing academic activities and assignments), and high expectations from teachers and parents (34). In other words, these factors are experienced in the university environment almost identically regardless of gender, which can justify the absence of a significant difference in the academic burnout score between males and females.

Nonetheless, in developing countries with high levels of individualism and patriarchy, women are more likely to experience job burnout because of high effort and low rewards. In other words, it is more probable that women experience burnout due to the high-stress levels they experience as a result of striving for equality and recognition in these societies (57). However, since Iran is relatively balanced in this regard, the competitive atmosphere among students is almost the same regardless of

gender; considering this, it would seem reasonable to expect no difference between male and female students in regards to academic burnout.

In contrast with these findings, some studies conducted outside of Iran have reported that male students suffer from a higher level of academic burnout than female students (37, 39, 49, 58). In support of these results, it has been stated that male and female students have different academic motivations. Moreover, men are more concerned about not finding a suitable job or becoming unemployed in the future. Consequently, male students experience more academic pressure than female students, leading to an increased risk of academic burnout (59). On the contrary, the results of other studies were indicative that female students suffer more from academic burnout than male students (38, 47, 60, 61). The results of present study suggested that male students were more resilient and perceive less stress than female students. Accordingly, male students exhibited more extraordinary tenacity when faced with academic stress and challenges, resulting in a lower academic burnout level than female students (62, 63). In addition, the cultural and social differences between the studied societies have been pointed out as justifications for discrepancies in the results. These studies have concluded that family social support for women and social support from colleagues for men were protective factors against burnout. Hence, female students were more likely to experience academic burnout in societies without solid family structures (64). Despite the many studies conducted so far, it is clear that similar results have not been achieved regarding the relationship between academic burnout and gender.

As a result of the current study, the overall mean score of academic burnout and its subscales varied significantly among the studied universities. However, it has been reported that factors, such as physical facilities, technology levels, and social conditions, can contribute to the effectiveness of a teaching-learning environment (e.g., university) (65). Nevertheless, the stakeholder's perspective on that educational environment is crucial; in other words, stakeholders' perceptions and attitudes toward a university environment determine their behavior, motivation, and performance (66, 67). The student's perception of the learning environment is determined by different variables, such as the institution's educational and research infrastructure, the availability of learning opportunities, the teacher's skills and teaching methods, interaction with peers, and the student's prior experiences (68, 69). The results of several studies have demonstrated a positive relationship of students' perceptions of the learning environment with their knowledge, motivation, and academic vitality, resulting in decreased academic burnout and improved academic performance (70-73). This study examined several universities in the east, west, and center of Iran, as well as some of the universities located in less privileged areas; therefore, there would undoubtedly be differences between these universities concerning the quality of provided education, and consequently, students' perceptions of the learning environment. Hence, this factor, along with cultural and social differences, can explain why academic burnout scores differ between the universities studied.

According to the findings of this study, the mean hope for employment score was obtained at 55.69±14.61, which indicated that the hope for employment was at an average level in the studied population. It was also revealed that there was a negative and significant relationship between students' academic burnout and their hope for employment; meaning that academic burnout decreased with the increase in the hope of employment among students. The results of the study by Ajam Akrami reported a negative and significant relationship between academic burnout and hope for employment, which was consistent with the results of this study (22). The findings of some studies have also shown the existence of a negative relationship between the hope for employment and academic burnout in the humanities and engineering fields, which is in line with the results of the present study (24, 25, 36).

Based on the results of the present study, the mean overall scores of hope for employment and its subscales could predict 8.4% and 8.2% of academic burnout in the studied population, respectively. In the research by Shikholeslami et al., a negative and significant relationship was found between the subscales of hope for employment and academic burnout, which was consistent with the findings of this study (23). Furthermore, the findings of some studies have suggested that interest in the field of study, future employment status, and a positive educational environment can impact students' motivation and academic performance and reduce academic burnout, which is in agreement with the findings of the present study (74, 75). Moreover, the results of the present study are in agreement with those of a previous study from Islamic Azad University's, Azadshahr Branch, which have shown a negative and significant relationship between academic burnout and hope for employment (24). This can be explained by the fact that in the absence of a specific career goal and reduced hope for employment, students may experience anxiety and

depression (76). If this process continues, students may develop a negative attitude towards academic activities, and consequently, be prone to academic burnout, which can negatively impact their motivation and performance. The results of an associated with motivation to leave the job (77). Furthermore, the findings of another study in South Korea showed that hope for employment positively impacted students' career attitudes, self-efficacy in career decision-making, the direction of thinking, and goal setting (78).

The empirical evidence regarding interventions that target hope in the occupational setting is encouraging. Feldman and Dreher reported that even a short intervention could significantly increase the hope for employment in students (76). One possible interventional approach is to encourage students to determine their career goals, define the steps that need to be taken to achieve those goals, and provide advice about what actions are most appropriate by health sciences professors. The result of this process can have a significant impact on students' thinking abilities (77). Considering the nature of the health sciences field and the possibility that graduates will become self-employed (founding a business and consulting), offering entrepreneurship and work-based education courses (78) is recommended to improve job skills and prepare students for the workplace.

Similar to other studies, the present study has some limitations. Since only undergraduate students were investigated in this study, generalizing the findings to students of other educational degrees, such as Master's and PhD, should be performed with caution. Additionally, this study was limited to five health faculties in Iran; therefore, it is recommended that similar research be conducted in other health faculties as well. Furthermore, as with all self-report studies (questionnaires), the studied population might have answered the questions incorrectly.

Conclusion

The results of the study showed a high prevalence of academic burnout among health science students. Moreover, it was found that hope for employment negatively impacted academic burnout. In other words, students' academic burnout decreased with an increase in employment hope. Educational interventions such as entrepreneurship courses and work-based education are suggested to increase students' hope for employment. This process, in addition to reducing academic burnout, can improve students' academic performance, and consequently, educate efficient graduates and improve society's health.

investigation conducted on young apprentices in Switzerland revealed that having hope for employment was positively correlated with motivation and job performance while negatively.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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