



The Relationship Between Basic Psychological Needs and Academic Burnout in Medical Students

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Abstract

Background: Academic burnout has several negative consequences such as decreased motivation, academic eagerness, and achievement among students.

Objectives: The current study aimed to investigate the relationship between basic psychological needs and academic burnout.

Methods: The current descriptive-correlational study was conducted among 233 students of Kashan University of Medical Sciences (140 females and 93 males) selected through stratified multistage sampling in the second semester of the 2016 - 2017 academic year. The participants responded to Bresó Academic Burnout and Gagné Basic Psychological Needs questionnaires and provided their demographic information. Data were analyzed using SPSS (Version 22) using canonical correlation analysis.

Results: There was a significant negative correlation between academic burnout and autonomy ($r = -0.296$, $P < 0.01$), competence ($r = -0.548$, $P < 0.01$), and relatedness ($r = -0.290$, $P < 0.01$) needs. Canonical correlation coefficient was 0.61. The results of canonical analysis showed only one significant set of basic psychological needs and components of burnout. In addition, as psychological needs, especially the competence need, were satisfied more, the probability of academic burnout, especially in the academic inefficacy dimension, as the main component of academic burnout, was reduced.

Conclusions: The fulfillment of basic psychological needs, especially competence need, plays an important role in preventing academic inefficacy among students. Fulfilment of basic psychological needs in educational programs could be a protective factor against students' academic burnout and improve their academic performance.

Keywords: Basic Psychological Needs, Academic Burnout, Medical Students

1. Background

Students face several negative challenges in achieving academic success in their educational environment, which could possibly produce adverse effects on their motivation, academic achievement, and psychological well-being. One of the most important challenges is the academic burnout (1). Although burnout studies were primarily limited to helping occupations or vocational training of health workers or school teachers over the last few decades, more recent studies have also focused on the educational settings and defined the concept of academic burnout which has both theoretically and practically attracted considerable attention among researchers (2). Until recently, studies on students' burnout have been limited to supervisory and advisory roles such as research and teacher assistants (3). Academic burnout among students comprises three components including feelings of tired-

ness due to educational demands and requirements (exhaustion), pessimism and lack of interest in tasks (cynicism), and inadequacy as a student (inefficacy) (4). Academic burnout is a reaction to chronic stress due to academic requirements, caused by the discrepancy between students' performance and their expectations about their academic achievement (5). Academic burnout has increased over the past years and led to many negative consequences such as academic inefficacy, depression, etc. (6). Since academic burnout influences learners' enthusiasm and motivation and has harmful consequences such as reduced academic performance (7), the study of its contributing and exacerbating factors is one of the most important research areas in educational environments, which could possibly help to understand students' academic performance.

Previous research has investigated various contributing factors to academic burnout such as perfectionism and

achievement goal-orientation, social support, emotional intelligence, resilience, anxiety and emotional deficiency, self-esteem, and hope. However, there is scanty research on the unfulfillment of basic psychological needs as a key factor leading to burnout. The theory of basic psychological needs introduces three innate, universal psychological needs including autonomy, competence, and relatedness. The need for autonomy means an individual's need for self-regulation, self-organization of experiences and behaviors, engagement with personal activities, as well as the need for choice and self-initiation and the feeling of obligation to perform a particular task (8). The need for competence reflects the need to be effective in interactions and communication with the environment, indicating the desire to use talents and skills in pursuing optimal solutions (9). Finally, the need for relatedness refers to the sense of security in communication with others and finding oneself worthy of love and respect. The fulfillment of these needs is essential for mental health in a wide range of cultural contexts. If basic psychological needs are met, self-esteem could develop; otherwise, individuals might experience a fragile, negative, and critical perception about themselves (10).

The results of previous studies show a negative relationship between the satisfaction of basic psychological needs and burnout. For example, Van den Broeck et al. found that there is a negative relationship between satisfaction of basic psychological needs, fatigue, and burnout (11). In academic environments and universities, in particular, students' mental health is negatively affected due to high competition and demands for education and lack of attention to psychological factors, which gradually leads to academic burnout. Burnout is one of the factors that decreases students' motivation to perform academic tasks and prepare for exams. Motivation is an important factor for academic achievement, and individuals with more internal motivation reportedly experience less academic burnout; therefore, enhancing students' internal motivation could reduce their academic burnout (12). On the other hand, addressing basic psychological needs plays an important role in improving students' internal motivation (13), which reduces their academic burnout.

Academic burnout plays a crucial role in students' mental health and academic performance. Numerous studies have reported the negative effect of academic burnout on academic variables such as achievement, eagerness, and engagement (5) as well as students' health variables including mental health (14) and perceived stress (15). Hence, further research should address contributing factors to academic burnout and suggest solutions to overcome it. However, our literature review reached few studies investigating basic psychological needs in educa-

tion, most of which have been conducted in occupational contexts. Moreover, no systematic study has explored the role of basic psychological needs in students' academic burnout in the Iranian context. Therefore, the current study aimed to investigate the relationship between basic psychological needs and academic burnout among students.

2. Methods

The current descriptive-correlational study was conducted to find out the variations of some criterion variables of the 'burnout components' based on 'psychological needs' as predictors. Since the criterion variable is a three-variable set of burnout components theoretically related to each other and form a set called academic burnout, regression analysis could not be used in this case (16). Therefore, the canonical correlation analysis was used to investigate the relationship between psychological needs and academic burnout. The statistical population of the study included all students of Kashan University of Medical Sciences in the second semester of the 2016 - 2017 academic year. According to the Cochran formula, 233 students (140 females and 93 males) were selected using stratified multistage sampling (gender-specific) method. Therefore, we randomly chose two faculties, namely, 'nursing and midwifery' and 'medicine', and then we randomly selected 10 classes from each faculty, and from each class, 10 - 12 students. Since about 60% of the students were female, this proportion was also retained in sample selection. Participants completed the Persian versions of Gagné Basic Needs Satisfaction in General Scale (BNSG-S) and Bresó Academic Burnout questionnaire and also provided their demographic information as well as their total grade point average (GPA). The questionnaires were completed individually. The oral consent of all subjects was obtained, and they were also assured about the confidentiality and anonymity of their answers. The participants were given sufficient time to complete the questionnaires. Data were collected over three weeks and analyzed using correlation analysis in SPSS (version 22, IBM Corporation, Armonk, NY).

The Bresó Academic Burnout questionnaire was used to measure students' academic burnout. This questionnaire was developed in 1997 by Bresó et al. and measures the three components of academic exhaustion, cynicism, and inefficacy. This 15-item questionnaire is scored based on a five-point Likert scale from completely disagree to completely agree. The total score of the instrument ranges from 15 to 75. In this questionnaire, the academic exhaustion includes five items (e.g., lessons are boring), academic cynicism four items (e.g., I do not like the content of the lesson), and academic inefficacy six items (e.g., I feel I cannot

overcome learning problems). The reliability of each section has been reported as 0.70, 0.82, and 0.75, respectively (17). Also, Azimi et al. reported the Cronbach's alpha coefficient of the whole questionnaire as well as its three components as 0.85, 0.61, 0.68, and 0.58, respectively (18). In the current study, the reliability coefficients for each component were calculated as 0.79, 0.82, and 0.72, respectively.

In order to measure basic psychological needs, the Gagné Basic Psychological Needs questionnaire was employed. To develop this questionnaire, Gagné adapted the scale of fundamental needs. This scale consists of three subscales of autonomy, competence, and relatedness and measures satisfaction of basic psychological needs at the general level. This scale has a total number of 21 seven-point Likert scale items. A higher score in each subscale indicates more fulfillment of the basic psychological needs. Besharat and Ranjbar validated the Persian version of this scale with a group of Iranian students and reported good validity and reliability for this scale. The Cronbach's alpha coefficient for the subscales of autonomy, competence, and relatedness were 0.89, 0.87, and 0.91, respectively (19). In the current study, the Cronbach alpha reliability coefficients for the three components were 0.63, 0.67, and 0.70, respectively.

3. Results

The mean academic burnout scores for male and female students were 41.13 ± 9.80 and 41.19 ± 10.51 , respectively. Among the female students, the mean scores of autonomy, competence, and relatedness needs were 34.18 ± 6.35 , 27.84 ± 5.57 , and 38.37 ± 5.57 , respectively, while for the male students; they were 51.5 ± 34.26 , 29.65 ± 5.17 , and 39.53 ± 6.67 , respectively. According to independent samples *t* test results, there was no significant difference between male and female students in terms of academic burnout ($t = 0.437$, $P = 0.966$), autonomy need ($t = 0.103$, $P = 0.918$), and relatedness need ($t = 1.315$, $P = 0.190$), but the mean of the competence need among females was significantly higher than that of males ($t = 2.490$, $P = 0.013$).

Students' age had no significant relationship with autonomy ($r = 0.44$, $P = 0.500$), competence ($r = 0.50$, $P = 0.450$), and relatedness ($r = -0.003$, $P = 0.950$), but there was a significant relationship between age and academic burnout ($r = 0.153$, $P = 0.02$). Table 1 shows descriptive indices (mean and standard deviation) and correlation coefficients between all variables.

According to Table 1, there was a significant negative correlation between all basic psychological needs and academic burnout components. This indicates the more students' basic psychological needs are fulfilled, the lower

their academic burnout would be. The canonical correlation analysis was used to investigate the relationship between the set of basic psychological needs (autonomy, competence, and relatedness) and academic burnout components (academic exhaustion, cynicism, and inefficacy). Table 2 presents the results of canonical correlation analysis.

Based on the results of Table 2, χ^2 was significant only for the independent and dependent variables of the first set, and the first set of basic psychological needs could significantly explain 0.61 of the variance of the academic burnout set.

Table 3 shows the canonical weights of the first significant set of dependent and independent variables.

As shown in Table 3, in the first set, the competence need and academic inefficacy were of great importance. The amount of variance extracted by the canonical variable of the first set (basic psychological needs) was 54.6%, and the amount of variance extracted from the canonical variable of academic burnout was 54.9%. The basic psychological needs explained 20.9% of the changes in academic burnout. To identify significant variables in sets or canonical variables, Tabachnick and Fidell suggested that the canonical loads which are ≥ 0.30 could be considered significant in the related set (20). Therefore, it could be concluded that as the fulfillment of the competence, autonomy, and relatedness needs increases, academic exhaustion, cynicism, and inefficacy decrease (Table 3).

4. Discussion

Academic burnout is the result of overexposure to permanent stressors in educational environments, which could possibly lead to academic burnout in the long run (21). The current study aimed at investigating the relationship between the fulfillment of basic psychological needs and academic burnout. The results showed a negative correlation between the satisfaction of basic psychological needs, especially the need for competence, and burnout, particularly the academic inefficacy component. This finding is consistent with the results of studies by Li et al. (22), Hodge et al. (23), and Bentzen et al. (24). According to a study by Sulea et al., fulfillment of basic psychological needs has a positive correlation with academic engagement and a negative correlation with exhaustion and academic burnout (25). To explain this finding, it could be said that when students experience low levels of choice and psychological freedom, they do not feel competent and cannot communicate with others and experience dissatisfaction, low energy, and fatigue. In a study by Li et al., a negative relationship was observed between the satisfaction of athletes' basic psychological needs and their

Table 1. Descriptive Indices and Matrix of Correlation Coefficients^a

Variable	Mean ± SD	1	2	3	4	5	6
Need for autonomy	34.21 ± 6.02	1					
Need for competence	28.56 ± 5.47	0.615**	1				
Need for relatedness	38.84 ± 6.62	0.497**	0.492**	1			
Academic exhaustion	13.61 ± 4.15	-0.151*	-0.352**	-0.167*	1		
Academic cynicism	10.69 ± 4.00	-0.199**	-0.387**	-0.203**	0.725**	1	
Academic inefficacy	6.84 ± 4.24	-0.366**	-0.590**	-0.332**	-0.334**	0.418**	1
Total score of academic burnout	41.15 ± 10.07	-0.296**	-0.548**	-0.290**	0.841**	0.873**	0.726**

^a *P < 0.05; **P < 0.01.

Table 2. Relationship Between the Sets of Basic Psychological Needs and the Academic Burnout Using Canonical Correlation Analysis

First Set	Eigenvalue	Canonical Correlation	Wilks' Lambda	χ^2	Df	P Value
1	0.614	0.617	0.614	13.60	9	< 0.001
2	0.008	0.089	0.992	0.450	4	0.766
3	0.0004	0.006	0.999	0.008	1	0.926

Abbreviation: Df, degree of freedom.

Table 3. Correlation, Canonical Standardized Coefficient, and Explained Variances for the First Set of Predictive and Criterion Variables

	Correlation Coefficient	Standard Canonical Coefficient
Predictive variables		
Autonomy need	0.58	-0.07
Competence need	0.99	0.99
Relatedness need	0.54	0.09
Percentage of extracted variance		54.60
Covariate		20.79
Criterion variables		
Academic exhaustion	0.57	-0.19
Academic cynicism	0.63	-0.14
Academic inefficacy	0.95	-0.83
Percentage of extracted variance		54.92
Covariate		20.91

burnout. Moreover, the need for competence and autonomy, as compared with relatedness need, were stronger predictors of burnout (22). Also, the results of a study by Hodge et al. showed that people with higher levels of burnout reported less satisfaction of their basic psychological needs, especially competence and autonomy (23). This order of important psychological needs is similar to that of the present study. Also, in a study by Sullivan et al., there was a strong correlation between competence and all three components of burnout (26).

The inverse relationship between basic psychological needs and burnout can be explained through the theory

of self-determination based on which the theory of basic psychological needs is derived. According to this theory, satisfaction of basic needs is positively related to the internal motivation. On the other hand, dissatisfaction of basic psychological needs increases students' amotivation. According to the results of Zhang et al., students with higher scores in internal motivation show less academic burnout (4). The results of a study by Domenech-Betoret et al. showed that satisfying basic needs increases students' academic engagement (27) and, consequently, reduces their academic burnout (7). The results of the current study indicated that satisfaction of autonomy and competence

needs increases learners' well-being. Among basic psychological needs, the need for autonomy, competence, and relatedness are the strongest predictors of students' mental well-being, respectively (28); on the other hand, there is a strong correlation between satisfaction of basic psychological needs and well-being which is the opposite of burnout (29).

In general, the results of the current study supported the usefulness of self-determination theory in educational environments. Niemiec and Ryan found that independence, personal abilities (competence), and safe interpersonal relationships were important educational tasks (8). Additionally, meeting students' basic psychological needs had a significant relationship with better learning outcomes and greater investment in time and energy for academic activities. In this regard, it can be argued that satisfaction of basic psychological needs via improving learners' academic performance leads to a reduction in their academic burnout (7). People with fulfilled psychological needs are more motivated than others to perform educational tasks and engage in interesting or enjoyable activities (30). In contrast, unfulfillment of needs impedes learners' development, results in the reduction of well-being, and increases emotional exhaustion (31), which could be due to the fact that when basic psychological needs are not satisfied, optimal and desired motives are neutralized (11) and the individual participates in activities to avoid punishment or obtain rewards.

The teacher's support for learners' autonomy seems to help learners better meet their basic psychological needs. These individuals, in comparison with others whose teachers are controlling, have higher competence, inner motivation, and better academic performance. Educational environments emphasizing friendship, communication between members, and mutual respect and have high quality educational services can increase the sense of coherence, autonomy, and competence among learners. Improving the culture of educational environments and the teachers' support for the autonomy of students can facilitate the fulfilment of students' basic psychological needs, leading to decreases in academic burnout (27). Accordingly, Salmela-Aro et al. stated that the school atmosphere and the positive motivation received from teachers had a negative relationship with academic burnout. This could be justified by the fact that the atmosphere prevailing in educational environments can increase or decrease academic burnout through satisfying students' basic psychological needs, because according to the self-determination theory, perceived satisfaction of basic psychological needs is influenced by the social environment (32).

4.1. Conclusion

Since previous research findings showed a negative relationship between educational environments' atmosphere, in terms of satisfaction of basic psychological needs, and burnout, teachers can facilitate students' satisfaction of their basic psychological needs by creating a supportive and challenging environment for students. This can be achieved by explaining the purpose and significance of learning activities, encouraging students to select appropriate academic activities, engaging them in skill-building projects, and providing them with sufficient resources. Students' need for independence can be met by providing them with opportunities to conduct study projects. Teachers can support students' need for competence by creating challenges, setting achievable goals, and providing support and positive feedback for students. Students' need for relatedness can be met when teachers show acceptance, understanding, and attention. Teachers should respond to and develop this need by giving students ample opportunities for team-work. Thus, by recognizing students' basic psychological needs and trying to meet them in educational environments, it is possible to some extent to compensate for the destructive effects of the lack of proper satisfaction of these needs in family and provide a better basis for the individual's academic achievement. As a result, reducing academic burnout can improve students' achievement in different scientific fields.

4.2. Limitations

The study samples were limited to the students of Kashan University of Medical Sciences; therefore, care should be taken in the generalization of the results of the present study. Moreover, since the design of the current study was correlational, no cause-and-effect relationships between basic psychological needs and academic burnout could be inferred. In addition, due to paucity of previous research, other potential intervening factors were not investigated. Also, the current study was quantitative; thus, it is suggested that future studies use qualitative data collection techniques such as deep and semi-structured interviews in order to obtain more conclusive results.

Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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