Research Article

The Impact of Emotional Intelligence on Burnout Aspects in Medical Students: Iranian Research

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Background. Burnout is a psychological syndrome identified by different degrees of emotional exhaustion depersonalization and a low sense of personal accomplishment, which is an increasing problem among medical students. Emotional intelligence is a set of noncognitive skills that propagates an individual's capability to encounter environmental complications, particularly burnout, successfully. This research was conducted to investigate the relationship between emotional intelligence and academic burnout among medical students. *Methods.* This cross-sectional study was carried out on 136 medical students at Tehran University of Medical Sciences in 2018. Data were collected by a demographic checklist, Siberia Schering's Emotional Intelligence questionnaire, and Bresso Academic Burnout questionnaire and analyzed by SPSS22 software using descriptive methods and linear regression tests. The significance level was set at a P value <0.05. *Results.* The study enrolled 136 medical students, including 70 (51.5%) men and 66 (48.5%) women, with an average age of 24.94 (SD = 1.03). Besides, 112 students were single (82.4%), and 24 were married (17.6%). Most students' emotional intelligence and academic burnout were moderate (89% and 69.1%, respectively). According to the results, none of the burnout dimensions significantly correlated with age and gender. Among emotional intelligence dimensions, students possessing higher self-motivation experienced more significant academic fatigue. Students with higher self-awareness and self-regulation experienced lower academic fatigue, academic apathy, academic inefficiency, and academic burnout. In general, medical students with higher scores on emotional intelligence experienced significantly lower academic fatigue, academic apathy, academic inefficiency, and academic burnout. There was a significant negative association between emotional intelligence and burnout ($\beta = -0.496$, $P < 0.001$). *Conclusion.* Emotional intelligence appeared as a significant factor in protecting medical students against academic burnout, so enhancing emotional intelligence through training may be an essential intervention for reducing burnout.

1. Introduction

Burnout is a psychological syndrome described as an extreme outcome of prolonged stress exposure at work, which arises when professional demands and personal capacities are unbalanced for a long time [1]. This condition is characterized by various degrees of emotional accomplishment [2, 3].

As the fundamental dimension, emotional exhaustion is identified by a diminished emotional tone, emotional indifference, or oversaturation. It focuses on one's exhaustion, perception of insufficiency between emotions and the context, and the fact that substantial resources have been utilized at work. Depersonalization is defined by the interruption of interpersonal relationships as the affected person becomes negativistic, indifferent or cynical, or dependent on others. Personal accomplishment accentuates the propensity of negative self-appraisal of one's capabilities, achievements, and professional success to give the affected person the perception of being unqualified and incapable of achieving the goals [4].

Although it is observed in all occupations [5], burnout is almost found in professions interacting with people, such as medical staff, lawyers, and teachers. Burnout is an increasing problem among the medical fraternity, especially medical students, due to their higher prevalence of psychological distress than the general population [6]. High levels of either emotional exhaustion or depersonalization could indicate burnout among medical professionals [7, 8]. One out of every two medical students suffer from burnout, even before residency [9]. As the principal objective of healthcare institutions' tasks is enriching the quality of care for patients, this issue ought to be considered in major decisions [10].

Burnout potentially has crucial professional and personal consequences, such as a higher frequency of medical errors, lapses in professionalism, impeded learning, problematic alcohol use, depression, anxiety, and suicidal ideation [8, 10–14]. Hence, burnout is considered a real challenge to health care workers, as it reduces the quality of care and is associated with individual and organizational poor outcomes, particularly in the context of the COVID-19 pandemic [15]. During the COVID-19 pandemic, developing concerns with respect to the primary scarcity and expense of the protective equipment, being close to infected patients in work settings, increased workload, and failure to control the breakouts, all leading to growing risk of corona virus transmission, have contributed to poor working conditions [16–18].

Furthermore, according to the literature, burnout has been characterized as a risk factor for subsequent heart disease [19] and a predictor of future musculoskeletal pain development among seemingly healthy people [20].

Emotional intelligence (EI) is a set of noncognitive skills that propagate an individual's capability to adapt more easily to situations and challenges and successfully encounter environmental pressures, particularly burnout [4]. It indicates people's self-perception of their emotional capabilities and skills, personality characteristics, and behavioral temperaments, influencing their qualifications to cope successfully in different circumstances [21].

According to the literature, self-awareness, self-regulation, self-motivation, social awareness, social skills, and organizational commitment influence the EI directly. [22].

Emotional intelligence is consistent with better adaptation and success in academic circumstances. Furthermore, prominent levels of emotional intelligence are related to higher levels of satisfaction with life and lower levels of anxiety, stress, and burnout. Consequently, emotional intelligence is suggested as a foremost, personality-level predictor of burnout dimensions, job satisfaction in professions such as mental health care and teaching, and satisfaction with life [21, 23]. This research was conducted to investigate the relationship between emotional intelligence and academic burnout in medical students. To address this gap, researchers in this study attempts to raise awareness regarding the importance of burnout side effects among medical students and seek the underlying risk factors associated with development of this significant issue among the future healthcare workers.

2. Materials and Methods

2.1. Patients and Characteristics. This cross-sectional study was carried out on 136 medical students of Tehran University of Medical Sciences in 2018 via referring to Doctor Shariati, Imam Khomeini, and Sina Hospital and their student dormitories. The students were selected by a convenience sampling method among medical students before starting their internship courses. Data collection was accomplished during one academic year. The participants filled in the questionnaires and submitted them to the researchers within two hours. Participants who gave their consent and completed both Siberia Schering's Emotional Intelligence and Bresso Academic Burnout questionnaires were included in this research. In the first section of the questionnaire, the study setting and voluntary participation were declared. A demographic checklist collected data on age, gender, and marital status.

2.2. Instruments

2.2.1. Emotional Intelligence Scale. Medical students' emotional intelligence was measured by the Siberia Schering's Emotional Intelligence questionnaire. Mansouri validated the Persian version of the questionnaire in Iran in a group of Allameh Tabatabai University graduate students. The reliability and validity of the questionnaire were assessed, with Cronbach's α of 0.85. The questionnaire consists of 33 questions scored on a five-point scale from 1 to 5. The sum of the scores makes up the total score. The questionnaire evaluates five emotional intelligence subscales: self-awareness, self-control, self-arousal, sympathy, and social skills [24].

2.2.2. Burnout Scale. To evaluate burnout in medical students, we employed the Bresso Academic Burnout questionnaire, developed by Bresso et al. (2007). This questionnaire measures three areas of academic burnout:

academic fatigue, academic apathy, and academic ineffi-ciency. The questionnaire has 15 items rated on a five-point Likert scale from "I completely disagree" to "I completely agree." The reliability of the questionnaire was reported by its founders as 0.70, 0.82, and 0.75 for academic fatigue, academic apathy, and academic inefficiency, respectively. Azizi (2010) calculated the reliability of the questionnaire using Cronbach's alpha method for academic fatigue as 0.77, academic apathy as 0.82, academic inefficiency as 0.66, and the whole scale as 0.85. The validity of this questionnaire was measured by Bresso et al. (1997) using confirmatory factor analysis, reporting desirable adaptability fit index, incre-mental fit index, and the root mean square of the approx-imation error squares. Naami (2009) assessed the validity of this questionnaire by correlating it with the Student Stress Questionnaire and obtained the coefficients of 0.38, 0.42, and 0.45 for academic fatigue, academic apathy, and aca-demic inefficiency, respectively, which were significant at the level of $P \leq 0.001$ [25].

2.3. Statistical Analysis. Analysis was accomplished using SPSS version 22 software using descriptive methods (mean and standard deviation) and linear regression tests to assess the relationship between variables and academic burnout. The significance level was set at the P value of <0.05. The total score of academic burnout, including academic fatigue, academic apathy, and academic inefficiency, was compared with the emotional intelligence scores on self-awareness, self-regulation, self-motivation, social awareness, and social skills as the main characteristics and the demographic variables including age, gender, and marital status.

2.4. Ethical Approval. The Ethics Committee of Tehran University of Medical Sciences, Tehran, Iran, approved this study (IR.TUMS.MEDICINE.REC.1397.078). Informed consent forms were obtained from all the participants. For gathering reliable data, the participants were assured of the confidentiality of their personal information. After explaining the study purpose, voluntary participation with truthfulness was warranted. No interference was made in the educational process of medical students.

3. Results

The study enrolled 136 medical students, of whom 70 were men (51.5%) and 66 were women (48.5%), with an average age of 24.94 (SD = 1.03). Besides, 112 (82.4%) were single, and 24 (17.6%) were married (Table 1). Most students' emotional intelligence and academic burnout were moderate (89% and 69.1%, respectively). The mean score of emotional intelligence was 86.74 ± 10, and educational burnout was 38.29 ± 6.82.

According to the results, none of the burnout dimen-sions significantly correlated with age and gender (Tables 2 and 3). Linear regression showed that the mean score of emotional exhaustion was 0.024 points more in males, al-though not statistically significant (P value = 0.977). The total mean score of burnout was 3.089 points lower in

TABLE 1: Demographic data of medical students at Tehran Uni-versity of Medical Sciences.

	Category	Frequency	Percentage (%)
Age group	22–24	49	36
	25–27	83	61
	28–30	4	3
Gender	Male	70	51.5
	Female	66	48.5
Marital status	Single	112	82.4
	Married	24	17.6

TABLE 2: Relationship between burnout dimensions and age in participants using linear regression.

	β	p value
Emotional exhaustion	−0.455	0.248
Depersonalization	−0.057	0.782
Lack of personal accomplishment	−0.043	0.871
Total score	−0.388	0.498

TABLE 3: Relationship between burnout dimensions and gender in participants.

		Mean	SD	P value	β
Emotional exhaustion	Male	4.87	14.85	0.977	−0.024
	Female	14.83	4.55		
Depersonalization	Male	12.77	2.42	0.720	+0.153
	Female	12.92	2.54		
Lack of personal accomplishment	Male	13.07	3.17	0.530	+0.388
	Female	13.40	3.06		
Total score	Male	37.97	6.95	0.572	+0.655
	Female	38.63	6.71		

married students than in single ones, which was statistically significant (P value = 0.044) (Table 4).

A multivariable regression model studied the concur-rent influence of age, gender, and marital status (Table 5). The results showed that the mean score was 3.11 points lower in married students than in single ones, independent of age and gender, which was statistically significant (P value = 0.045). Linear regression indicated a 0.455-point decrease in the academic fatigue score with each year's increase in age; however, it was not statistically significant (P value = 0.248).

Among emotional intelligence dimensions, students possessing higher self-motivation experienced more sig-nificant academic fatigue. Each point increase in the self-motivation skills score was significantly correlated with a 0.373-point increase in the academic fatigue score (P val-ue = 0.032) (Table 6).

Students with higher self-awareness experienced lower academic fatigue, academic apathy, academic inefficiency, and academic burnout. For each score increase in self-awareness skill, academic fatigue decreased by 0.537 scores (P value < 0.001), academic apathy by 0.183 scores (P val-ue < 0.001), academic inefficiency by 0.283 scores (P val-ue < 0.001), and educational burnout by 0.752 scores (P value < 0.001) (Table 6).

TABLE 4: Relationship between burnout dimensions and marital status in participants.

		Mean	SD	P value	β
Emotional-exhaustion	Single	15.16	4.77	0.082	−1.836
	Married	13.33	4.12		
Depersonalization	Single	12.95	2.59	0.265	−0.622
	Married	12.33	1.78		
Lack of personal-accomplishment	Single	13.33	3.15	0.444	−0.539
	Married	12.79	2.96		
Total score	Single	38.83	6.88	0.044	−3.089
	Married	35.75	6.01		

TABLE 5: Multivariant regression of factors affecting the total score.

		B	Std. error	P value
Sex	Male	Reference		
	Female	0.934	1.171	0.426
Age		−0.309	0.570	0.589
Marital status	Single	Reference		
	Married	−3.116	1.537	0.045

TABLE 6: Comparison of burnout dimensions according to emotional intelligence aspects using β linear regression (P value).

	Emotional exhaustion	Depersonalization	Lack of personal accomplishment	Total score
Self-motivation	+0.373 (0.032)	+0.018 (0.847)	+0.092 (0.430)	+0.480 (0.058)
Self-awareness	−0.537 (<0.001)	−0.183 (<0.001)	−0.283 (<0.001)	−0.752 (<0.001)
Self-regulation	−0.762 (<0.001)	−0.301 (<0.001)	−0.491 (<0.001)	−1.076 (<0.001)
Social skills	−0.277 (0.168)	−0.056 (0.595)	+0.032 (0.810)	−0.281 (0.338)
Social awareness	−0.028 (0.865)	+0.165 (0.059)	−0.135 (0.220)	+0.240 (0.321)
Total score	−.366 (<0.001)	−0.126 (<0.001)	−0.212 (<0.001)	−0.496 (<0.001)

Students achieving higher self-regulation index scores experienced lower academic fatigue, academic apathy, academic inefficiency, and academic burnout. For each score increase in self-regulation skills, academic fatigue decreased by 0.762 scores (P value < 0.001), academic apathy by 0.301 scores (P value < 0.001), academic inefficiency by 0.491 scores (P value < 0.001), and educational burnout by 1.076 scores (P value < 0.001). All the mentioned items were significantly related (Table 6).

Medical students with higher scores on emotional intelligence experienced significantly lower academic fatigue, academic apathy, academic inefficiency, and academic burnout. For each score increase in emotional intelligence, academic fatigue decreased by 0.366 scores (P value < 0.001), academic apathy by 0.126 scores (P value < 0.001), academic inefficiency by 0.212 scores (P value < 0.001), and educational burnout by 0.496 scores (P value < 0.001) (Table 6).

For each score increase in social skills, academic fatigue decreased by 0.277 scores (P value = 0.168), academic apathy by 0.056 scores (P value = 0.595), and educational burnout by 0.281 scores (P value = 0.338). Nevertheless, for each score increase in social skills, academic inefficiency increased by 0.032 scores (P value = 0.810). These associations were not statistically confirmed (Table 6). Furthermore, for each score increase in social awareness, academic fatigue decreased by 0.028 scores (P value = 0.865) and academic apathy by 0.135 scores (P value = 0.220). For each score increase in social awareness, academic apathy increased by 0.165 scores (P

value = 0.059) and academic burnout by 0.240 scores (P value = 0.321). These relationships were not statistically significant (Table 6).

4. Discussion

Burnout is considered in contrast with the employees' wellbeing and work engagement [26]. Some systematic reviews suggest that the prevalence of burnout in medical students could range from 28% to 71% [27]. Similarly, in this survey, the academic burnout of most students (69.1%) was in the moderate range. This research found no correlation between age and burnout. In a survey among American surgeons, Shanafelt et al. discovered a negative association between burnout and age [28].

The mean score of burnout was significantly higher in single students than in married students in our study. However, a study performed by Dyrbye et al. on medical students, residents, and early career physicians observed no relationship between burnout and marital status [29]. Nonetheless, Aldrees et al. implemented a study on otolaryngology residents, confirming more burnout among married students than single ones [30].

In this study, gender was not related to burnout, although in Popa-Velea research, women appeared to be more vulnerable to emotional exhaustion and low personal accomplishment as the two main components of burnout [31]. According to Bore et al., factors contributing to medical

students' burnout include female gender, exclusive life factors, personality type, and workplace or learning environment, including human resources demands [32–34]. Another survey declared that burnout was higher in female students, students living longer in regional settings, having history of anxiety, low self-efficacy, and social isolation during placements [35]. However, gender and burnout were not statistically related in the current survey. Other possibly impressive factors were not inspected in this study.

The importance of emotional intelligence in physicians has fascinated researchers in terms of discovering the association of emotional intelligence with retention, promotion, and efficiency among academic practitioners. A growing number of published studies on emotional intelligence among medical students and resident trainees supports this issue's importance [36–39]. Our findings suggested that emotional intelligence could be a potential negative predictor of burnout. This is in line with an Iranian study by Shahin Vaezi et al. reporting a significant negative correlation between emotional intelligence and burnout among teachers [40]. Nevertheless, a significantly negative correlation ($r = -0.451$, $p < 0.0$, $r^2 = 0.203$) between the degree of emotional intelligence estimated with the Emotional Intelligence Scale (EIS) and personal accomplishment measured with the Maslach Burnout Inventory (MBI) was discovered among healthcare professionals in 2015 [4].

Another survey by Brenessa Lindeman MD indicated that more emotional intelligence ($p < 0.001$), agreeableness and emotional stability personality characteristics ($p = 0.003$), and positive job practices ($p < 0.01$) could protect against burnout. Favorable emotional intelligence and constructive work experiences were independent predictors of lower burnout ($p < 0.01$) after multivariable adjustment [41]. Another study on female nurses who completed the self-assessment of trait affectivity, emotional intelligence, anger and sadness at work, and burnout represented that emotional intelligence moderates the sequels of negative emotions on burnout [42].

According to Mendes's study in 2002, a higher score on emotional intelligence skills was correlated with coping efficiently with environmental demands and tensions regarding occupational stress and health outcomes [43]. Students with powerful emotional intelligence can cope effectively with anxiety, which, in turn, increases their life satisfaction.

In contrast with other dimensions of emotional intelligence, a positive association between self-motivation and academic fatigue was depicted in this study. This could be legitimized due to higher self-motivation in medical students. Besides, social skills and social awareness were not connected with any burnout components. However, a study conducted by Saiiari et al. in 2011 on sports teachers of secondary schools demonstrated a negative association between social skills and social awareness as the dimensions of emotional intelligence and burnout [44].

As a whole, an inverse relationship was detected between self-awareness, self-regulation, and total score of emotional intelligence and academic fatigue, academic apathy, academic inefficiency, and the total score of burnout. In other

words, increase in self-regulation, which can be defined as "controlling one's behavior, emotions, and thoughts," and also self-awareness which is explained by "conscious knowledge of one's character and feelings" leads to higher EI score and makes the students capable of identification and management of their emotions and avoids the development of burnout aspects as a result. Nelis et al.'s survey in 2009 showed a remarkable increase in emotion recognition and emotion management capabilities in the experimental group receiving a brief empirically derived emotional intelligence training, suggesting the possibility of emotional intelligence improvement [45].

4.1. Limitations. Medical students' potential motivation for responding may vary simply by differences in emotional intelligence or personal desires. Moreover, although well-validated instruments for both emotional intelligence and burnout were utilized in this study, several limitations may exist in the survey instruments, making it challenging to reflect the precise picture of emotional intelligence or burnout. As we did not investigate other available burnout and emotional intelligence measures, our findings are specific to the instruments used. Despite all limitations, this survey, to our knowledge, is the first to explore burnout and emotional intelligence among Iranian medical students, providing beneficial baseline information.

4.2. Suggestions. Training courses for fostering emotional intelligence should be included in the curricula of medical students from the beginning of their academic years to prevent various degrees of psychological disorders and burnout and promote progression in the following years. Accomplishing such studies in larger samples may reveal negative social awareness and social skills associations with burnout. Furthermore, extensive sample sizes may prove statistically significant relationships between burnout and age and gender. Associations between burnout and personal life factors, personality, and workplace or learning environment should be studied in a different research setting.

5. Conclusion and Practical Recommendations

Emotional intelligence appeared as a significant factor protecting medical students against academic burnout, so enhancing emotional intelligence through special training, focused interventions, and optimizing the work environment may be an appropriate solution for reducing burnout and facilitating academic adjustment among medical students. In order to ensure safe and high-quality patient care, the educational units in Iran should provide sufficient number of hospital staff in addition to approved methodology for evaluation and supervision of medical students' workload. Using such methodology enables the educational system administrators to decide about some well-organized designs to reduce the medical students' workload and increase the quality of patient care concomitantly. [46] Moreover, paying rational scholarships, guaranteeing future career and employment, utilizing encouragement techniques

and applying up-to-date approaches and motivator professors are considered beneficial suggestions. Besides, employing strategies for revolution of medical education constructions and augmentation of art and sports as voluntary components of curriculum could be valuable facilitators. Nevertheless, occupational health surveillance and workplace health promotion programs could act as tools to prevent burnout after graduation [15].

Data Availability

Raw data were generated at Tehran University of Medical Sciences. Derived data supporting the findings of this study are available from the corresponding author on request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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