

Original Article



Coping self-efficacy and its contributing factors among medical students at Tabriz University of Medical Sciences

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Abstract

Background: The COVID-19 pandemic declaration in 2019 required schools and universities to close, challenging students and their education. The mandatory stay-at-home quarantine rules and change to online education accentuate how mental health plays a crucial role in maintaining performance during challenging times. Coping self-efficacy (CSE) is associated with higher mental health levels and resilience to distress. Therefore, this study aimed to evaluate students' CSE and related factors.

Methods: In this cross-sectional study, CSE scores and demographic characteristics of the participants were evaluated through online questionnaires. A total of 364 medical students from Tabriz University Medical Sciences completed the questionnaires and were included in the study. CSE scores of students and their demographic characteristics were obtained, and the analysis was performed using a t-test and one-way ANOVA.

Results: Of those included, 37.1% were males and the mean CSE score of the students was 83.75 ± 24.8 . Students' type of residence was found to be significantly related to their CSE scores ($P=0.003$). Students living with their spouses had the highest CSE scores, while those living with their parents had the lowest CSE scores. The association of CSE scores with gender, marital status, academic year of study, and source of income was not significant.

Conclusion: According to the findings of this study, students living with their parents had the lowest CSE scores. CSE plays a crucial role in managing distressful events, and our findings may be useful in identifying groups prone to stressful factors and help enhance future educational policies and planning.

Introduction

COVID-19, which started in December 2019, spread across the world and was declared a pandemic in March 2020.¹ To slow contamination, lockdowns were forced, especially at universities and schools. Following the lockdowns, universities began their distance education programs, and online education means were used. Such a rapid switch in education methods and various technical issues made it difficult for students to keep up with the new situation.^{2,3} In addition to the negative effects of the pandemic on education, economic decline and mental health issues also put excessive stress on students, resulting in poorer student performance.^{4,5}

Stress is defined as an external factor that is consumed as far more demanding than one's coping capabilities and resources.⁶ The process of understanding these external

factors is called 'primary appraisal'. 'Secondary appraisal' which is defined as the appraisal of coping options in situations, can affect the choice of strategies for coping. In other words, how an individual perceives his or her capabilities to deal with stressful events and control their outcomes is referred to as secondary appraisal. 'What can I do?' is the question to be answered in the secondary appraisal of a situation.^{7,8}

Coping is known to help manage stressful situations. Coping can involve dealing with the emotional aspects of stressful events (emotion-focused coping) or the problematic aspects of such events (problem-focused coping). When uncontrollable stressful events are dealt with problem-focused coping strategies or controllable stressors are primarily dealt with emotion-focused strategies, maladaptive coping occurs. Maladaptive coping

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is defined as a poor choice of coping strategy to tackle a problem or stressful event. On the contrary, when there is a proper choice of coping strategy (i.e., emotion-focused versus problem-focused), adaptive coping is achieved.^{9,10}

Coping self-efficacy (CSE) is one of the factors contributing to adaptive coping and helps decrease the negative impacts of stressful events (e.g. COVID-19 pandemic). Self-efficacy is described as one's understanding of their capabilities to show certain behaviors, and CSE is the assumption of one's ability to manage one's stress.^{11,12} Recent studies have indicated that CSE is associated with higher levels of well-being and less severe mental disorders such as depression. Higher CSE was also related to better response to cognitive-behavioral interventions.¹³ Measuring CSE and its contributing factors during the COVID-19's lockdowns could help better enhance stress-related behavioral interventions, especially for students.

This study aimed to evaluate CSE levels and associated factors among medical students of Tabriz University of Medical Sciences using the 26-item CSE scale developed and validated by Chesney et al.⁹ The validity and reliability of the Persian version of CSE used in this study were confirmed by Tol et al.¹⁴

Materials and Methods

This cross-sectional study included 364 medical students from Tabriz Medical Sciences University. Due to COVID-19's limitations, in June 2020, the questionnaires were distributed online via the telegram application, where they were accessible to most students. The students who answered the questionnaires were included while their identities remained anonymous throughout the study.

The inclusion criteria were studying medicine at Tabriz University of Medical Sciences and consent was included in the study, while the exclusion criteria were not answering all the questions of the questionnaire or not completing it to the end. The platform used to present the questionnaires to the participants was online and it was designed to prevent participants from continuing if they left a question unanswered. Therefore, no missing data were anticipated based on our results.

Data were collected on general characteristics and the CSE scale. CSE was assessed using a 26-item measure of perceived self-efficacy in coping with challenges and threats. Participants were asked, 'When aren't things going well for you? or when are you having problems? how confident are you that you can do the following?': They were then requested to rate on an 11-point scale the extent to which they consider they could perform behaviors vital to adaptive coping, such as 'sort out what can be changed, and what cannot be changed,' 'break an upsetting problem down into smaller parts,' 'look for something good in a negative situation,' and 'get emotional support from friends and family.' Anchor points on the scale had been zero ('cannot do at all'), 5 ('moderately sure can do'), and 10 ('certain can do'). An overall CSE score was created

by summing the item ratings ($\alpha = 0.95$; scale mean 137.4, SD = 45.6).^{9,14}

The general characteristics data included gender, marital status, residence, academic year of study, and source of income. To analyze the association between gender and CSE, an independent t-test was used. The association of marital status, residence, academic year of study, and source of income with the CSE score was analyzed using one-way ANOVA. The results are shown as counts (and percentages for categorical variables), standard deviation (SD), and mean or median for variables.

All analyses were performed using SPSS version 16 and a *P* value less than 0.05 was considered significant.

Results

A total of 364 students completed the questionnaire and were included in this study. Of those included, there were more female than male participants. Most students reported relying on their families as sources of income. Living with parents and living in a dormitory were the two types of residences most frequently reported. The baseline characteristics of the study participants are presented in Table 1.

The CSE score of students was between 25 and 145, and the mean CSE score was 83.75 ± 24.8 . Among general characteristics, residence was significantly associated with CSE. Students living with their spouses or partners had the highest CSE, while those living with their parents had the lowest. Married students also reported higher CSE

Table 1. Baseline characteristics of participants (n=364)

Characteristics	N	%	
Gender	Male	135	37.1
	Female	229	62.9
Marital status	Married	18	5
	In a relationship	30	8.2
	Single	316	86.8
Residence	With parents	160	47.5
	With roommate	11	3.3
	With partner	8	2.2
	Alone in private home	25	7.5
	dormitory	133	39.5
Academic year	7 th year	22	6
	6 th year	27	7.4
	5 th year	42	11.5
	4 th year	54	14.8
	3 rd year	61	16.8
	2 nd year	83	22.8
Source of income	1 st year	75	20.6
	Scholarship	22	6.5
	Partner or spouse	8	2.4
	Him/her self	47	14
	Family	259	77.1

scores, but the results were not statistically significant. Gender did not have a significant relationship with the CSE scores of students. The relationship of other factors with the students' CSE score was found to be insignificant, as shown in Tables 2 and 3.

Discussion

Following the lockdowns imposed due to the COVID-19 pandemic, many countries initiated distance education at their universities. They used various methods and technologies to facilitate online learning. For example, off-campus research under the remote supervision of their department has been conducted for students in some countries. Instructors were trained to use online teaching platforms such as Zoom, or students were subscribed to various distance education platforms.^{2,15,16}

However, effective implementation of distance education encounter challenges. First, due to the rapid

Table 2. Results of association analysis between gender and coping self-efficacy (CSE) score of participants (n = 364)

	CSE	Standard deviation	P
Gender			
Male	87.1	23	0.09
Female	81.5	25.7	

spread of the virus, it was difficult to transition to online and distance education. Communication, students' assessment, technology tools, and time management issues, in addition to a lack of face-to-face interaction, also made distance education more difficult. Accessibility and equality of distance education was another matter that not all students could afford proper laptops and internet connections. In addition, some older users would have difficulties using online education, and many teachers found their skills insufficient for working with computer hardware and software.^{17,18}

COVID-19 affected students both economically and psychologically. Financial vulnerability increased among students, with many expressing concerns about affording college. Additionally, the pandemic led to a decrease in leisure time and limited social activities, further impacting their mental well-being. Interpersonal interactions and peer contact were diminished as social clubs were forced to close, adding further strain on students and their educational pursuits.^{4,19,20}

This study demonstrated that students living with their parents had the lowest CSE and were hypothetically prone to the negative effects of the pandemic. CSE is a protective factor against stressful events and individuals with higher CSE scores tend to have a higher chance of choosing

Table 3. Results of association analysis between Baseline characteristics and coping self-efficacy (CSE) score of participants (n = 364)

	CSE	F value (sig)	Sum of squares		Degree of freedom		Mean square		
			Within varieties	Between varieties	Within varieties	Between varieties	Within varieties	Between varieties	
Marital status	Married	99.3							
	In a relationship	89.5							
	Single	82.5							
	Dentistry	84	2.44 (0.089)	146989.6	2976	241	2	609	1488
	Pharmacology	90.3							
	Nursing	79.4							
Residence	Para medicine	85.3							
	With parents	77.7							
	With roommate	94.2							
	With partner	98.2	4.03 (0.003)	140476.6	9489	239	4	587.7	2372.2
Academic year	Alone in private home	86.9							
	dormitory	89.7							
	7 th year	88.1							
	6 th year	81.5							
	5 th year	87.44							
	4 th year	81	1.183 (0.316)	145606.2	4359.5	237	6	614.3	726.5
Source of income	3 rd year	78.3							
	2 nd year	81.8							
	1 st year	90							
	Scholarship	84.7							
Source of income	Partner or spouse	75	1.11 (0.345)	147911.6	2054	240	3	616.2	684.6
	Him/her self	90.2							
	Family	82.5							

appropriate coping strategies.¹ Regarding our study, perhaps students living with their parents are less likely to take responsibility and less familiar with situations that require coping and problem-solving skills. In one meta-analytic study, higher CSE in cancer patients was strongly and negatively associated with distress complications.⁶ Another study showed a negative association between CSE and chronic disease frailty in patients.²² In addition, a study demonstrated an association between higher social CSE and decreased IL-6 levels, suggesting that social CSE is a factor in mental resilience.²³ As we observed the negative effects of events like COVID-19 pandemic on students' performance, it would be helpful to identify and intervene beforehand. The effectiveness of coping training interventions on athletic CSE was demonstrated in a previous study.²⁴ In another study, a cognitive behavioral self-help intervention helped enhance CSE in patients with chronic disease.²⁵ In addition, the psychological intervention helped increase CSE in college students with depression.²⁶ Our study aimed to provide an understanding of the CSE of students studying at Tabriz University of Medical Sciences. These findings may be helpful in future planning and taking effective measures to improve students' resilience to distress.

Our study has some limitations; first, the current study evaluated medical students at Tabriz University of Medical Sciences, and its findings may not apply to other academic majors and universities. Second, the questionnaires were not filled out under the supervision of the researchers, and it is possible that not all participants filled out the questionnaires accurately or provided answers that were not in compliance with their situation. Considering the bias of false answers by participants, outlier data were removed before the analysis; however, interview-based studies that decrease the risk of inaccurate data inclusion are suggested. Moreover, our study method was cross-sectional, which does not help us infer any cause-effect association and further research is needed to confirm causal associations.

Conclusion and Suggestions

This study assessed the CSE of medical students and the factors affecting it at Tabriz University of Medical Sciences. Our findings indicate that groups with the lowest CSE scores are likely to experience greater difficulties during stressful periods such as the COVID-19 pandemic. Given the crucial role of mental health and coping mechanisms in sustaining student performance, it seems prudent to implement appropriate strategies and plan for the future to enhance students' educational experiences. Educational institutions should assess students' coping skills both before and during their academic journey, and strategize the execution of appropriate programs to support them. These initiatives could encompass sessions designed to enhance students' stress management and problem-solving abilities. Further research exploring the impact

of CSE skill training on student performance would be beneficial in this context.

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Authors' Contribution

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Competing Interests

The authors declare no conflict of interests.

Ethical Approval

This study has the ethics code of ID IR.TBZMED.REC.1399.227 approved by the ethics committee of Tabriz University of Medical Sciences.

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