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Original

Association of Emotional Intelligence with Sleep Quality

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Abstract

Background: Emotional intelligence is a mixed complex of emotional self-knowledge, skill, and other characteristics that affect an individual's success in facing with pressures and environmental forces. It is also considered as a stress controller that reduces the negative consequences of anxiety. The current study was conducted to assess the relationship of emotional intelligence with exam anxiety and sleep quality among the senior high school girls in Qom, Iran. **Methods:** In this cross-sectional study, 263 female senior high school students were selected by multistage sampling method in Qom in 2015. Data collection was conducted using four questionnaires including demographic information, Shot emotional intelligence, Petersburg sleep quality, and Exam anxiety. Data were analyzed by Pearson correlation coefficient, T-test, and analysis of Variance in SPSS. **Results:** Poor sleep quality was observed in 49.4% of the participants and the mean score of emotional intelligence was 144.8(18.46). Among four factors of the emotional intelligence, optimistic/ emotions adjustment had a negative significant correlation with exam anxiety and sleep quality (P<0.05). Furthermore, a direct significant correlation was observed between emotional intelligence and exam anxiety (P<0.05). Nevertheless, emotional intelligence had no significant relationship with exam anxiety and sleep quality (P>0.05). **Conclusion:** The prevalence of poor sleep quality in senior high school girls was high due to exam anxiety. In addition, the mean score of emotional intelligence was at a high level, which could help the adolescents in dealing with the environmental stress and emotions.

Key words: Emotional intelligence; Exam anxiety; Sleep quality

Introduction

In today's societies, tests, exams, and their outcomes play an important role in evaluating and improving the learners' competence and their position, respectively. Educational situations are naturally accompanied by anxiety and stress, such as exam anxiety. This is a common type of emotional function, which is usually associated with tension, anxiety, concern, and confusion. Anxiety has a negative relationship with individuals' rate of performance in different situations, such as work and education.[1] According to the studies, the school and university students are engaged with the exam anxiety to a large extent.[2] One of the factors that is simply affected by anxiety is the quality of sleep, the results of several studies indicate a reverse and significant

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relationship between anxiety disorders and sleep quality.[3]

Emotional intelligence is a skill to control anxiety and its negative consequences. Individuals with exam anxiety respond to assessment situations with pessimistic expectations, because they have negative past experiences and lack the necessary skills to improve their low emotional intelligence. These people do not have an appropriate understanding of themselves and their abilities; in other words, they lack the ability to manage their behavior.[1] In fact, emotional intelligence is a multidimensional construct and involves the interaction between emotion and cognition that results in compromising behavior.[4] Emotional intelligence encompasses four interrelated abilities, including having emotional perception of oneself and others, using emotions to facilitate decision-making, having emotional excitement, and having emotional management.[5] From the Bar-ON perspective, emotional intelligence is a combination of the excitement self-awareness, skills, and other attributes that affect the individual's success in coping with the pressures and desires of the environment.[6]

Some studies reported a significant relationship between emotional intelligence and general mental health. According to the results of these studies, increased general mental health depends on the promotion of emotional intelligence, especially stress management skills, mood management, and skill compatibility.[7, 8] The literature also indicated that emotional regulation is the effective factor that makes some students more successful and more protective than the others. Emotional regulation is important to reduce the consequences of academic anxiety and its adverse effects on various aspects of life, including the quality of sleep, using a specific educational program.[9, 10] Despite the importance of the national tests for students and their high degree of anxiety, few studies have been carried out on the anticipatory and preventive factors in order to control anxiety among the students. So, the aim of this study was to investigate the correlation of emotional intelligence with anxiety and quality of sleep among the senior high school students.

Methods

This cross-sectional study was conducted in the academic year of 2014-15 to investigate the correlation of emotional intelligence with anxiety and quality of sleep on 263 high school students. The minimum sample size required for this study was 113 individuals, calculated by considering the correlation coefficient of r = 0.35 between the emotional intelligence and exam anxiety scores in the pilot study, the first type error of α = 0.01, and the study power of 1-β= 0.90. In order to increase the precision of study estimates, it was distributed among 270 people and a total of 263 individuals were analyzed. A multi-stage sampling method was used to collect the participants, so that one school was randomly selected from each educational district. Then, all the senior students of the selected schools entered the study. The inclusion criteria were studying at the fourth year of high school, having the decision to attend the national university entrance exam, and having consent to participate in the study. The instruments used in this study were demographic information questionnaire, Shot emotional intelligence questionnaire, Petersburg sleep quality questionnaire, and Exam anxiety questionnaire.

Demographic questionnaire included the field of study, average in diploma, type of school, education area, parents' education and job, number of family members, history of participation in the test, preparation duration for the exam, and study hours. The emotional intelligence questionnaire contained 33 questions and was developed by Schutte et al. (1998)[11] based on the theoretical model of Salovey and Mayer's emotional intelligence.[12] Its aim is to measure the adolescents' emotional intelligence. The reliability of this scale was calculated by Javid, based on the internal alpha of 0.81.[13] This questionnaire

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consists of the following four factors: Emotion regulation: It is defined as the ability to adapt to adverse or negative emotions using self-regulating methods that improve the intensity or duration of these emotional states. It also refers to the ability to create pleasurable conditions for others by hiding one's negative emotions in order to avoid harming others' personal feelings.

Excitement assessment: The ability to recognize and understand the emotions of oneself and others based on the situational clues and expressions, which are accompanied by a cultural agreement. The exploitation of excitement: It includes the ability to use emotional information in thinking, acting, and problem solving.[12] Social skills: To score the questionnaire, the participants should use the 5-point Likert scale[14] using these options: completely incorrect (1 score), incorrect (2 scores), almost correct (3 scores), correct (4 scores), and completely correct (5 scores). It is noteworthy that the expressions 5, 28, and 33 were scored inversely. Pittsburgh sleep quality questionnaire was used as a standard tool for evaluating the sleep quality and its value among the students. This questionnaire contains 19 items in seven parts (sleep quality, sleep latency, sleep duration, perennial sleep efficiency, sleep disturbances, sleep use medication, and dysfunction of the day). The total score of the questionnaire varies from 0-21, so that higher scores indicate more desirable quality of sleep.[12] The questionnaire's validity and reliability were confirmed in various studies in Iran.[15, 16]

The exam anxiety questionnaire (concerns and negative thoughts): Driscoll anxiety inventory is a 10-item questionnaire dealing with the concerns and negative thoughts. The items should be answered on a 5-point scale ranging from completely incorrect (score 1) to completely correct (score 5). The reliability of this questionnaire was confirmed in Khorrami Rad study and its Cronbach's alpha coefficient was 0.44. In order to measure the students' exam anxiety level, the total score of 10 questions is divided by 10. The possible anxiety scores can range from 1 to 5; lower scores indicate a lower level of anxiety.[17] The descriptive statistics including percent, mean, standard deviation, and Pearson correlation coefficient were used to describe the correlation of emotional intelligence with sleep quality scores and anxiety. Independent T-test and ANOVA were run to compare the scores of emotional intelligence in students based on their sleep quality status and demographic variables. The above analyzes were performed using SPSS 20.

Results

In this study, 263 students were studied. Considering the participants' field of study, 107 (40.7%) studied natural sciences, 82 (31.2%) studied mathematics, and 74 (28.1%) studied humanities. The mean of students' average was 15.5(2.88), their total mean of diploma average was 17.2(1.8), the mean of study hours was 4.5(7.2), the mean of non-teaching study hours was 3.1(7.1), the preparation duration for the exam was 11.8(9.3) months, and the frequency of participation in the test was 6.2 (5.6) times. Parental education of the most students was under the diploma (62.25%), most participants' fathers were self-employed (70.8%), and most participants' mothers were housekeeper (92.3%) Table 1.

The average sleep quality score in the students was 11.8±9.3, 50.6% (124 students) of the participants had a good sleep quality (normal), and 49.4% (121) had poor sleep quality.

Delay in falling sleep (39.3%) and sleep duration of less than the standard (30.2%) were the most frequent disorders among the students with sleep problems. Moreover, 27.5% of students had functional impairment during the day due to sleep problems. The mean and standard deviation of the emotional intelligence score of students were 144.8 and 18.5, respectively. Descriptive statistics of emotional intelligence structures and their correlation are presented in Table 2.

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According to the results, a positive and significant, but weak correlation was found between emotional intelligence structures. Regarding the results of t- test, sleep quality of students had a significant relationship with their optimism / emotion regulation structures and emotional intelligence (P <0.05). However, no significant difference was observed between students with impaired sleep and students with normal sleep quality in terms of social skills scores, emotional users, and total score of emotional intelligence Table 3.

Table 1. Distribution of absolute and relative abundance of students in terms of demographic characteristics

Variables	Categories	Frequency	Percent
Major	Natural	107	40.7
	Mathematic	82	31.2
	Humanity	74	28.1
Kind of school	Governmental	249	94.7
	Private	14	5.3
Education area	1	104	40.9
	2	69	27.2
	3	67	26.4
	4	14	5.5
Participate in trial tests	No	109	42.4
	Yes	148	57.6
Mother's education level	Under the diploma	175	69.2
	Diploma	51	20.2
	Academic	27	10.7
Father's education level	Under the diploma	139	55.3
	Diploma	57	22.7
	Academic	55	22
Mother's job	Housewife	240	92.3
	Employee	20	7.7
Father's job	Employee	49	19.3
	Worker	82	32.3
	Others	123	48.4
Family members	<5	79	31.2
	5-7	148	58.5
	>7	26	10.3
Having brothers or sisters with experience of national entrance exam	No	132	50.8
	Yes	128	49.2

Table 2. Descriptive statistics and results of correlation between emotional intelligence structures

Emotional Intelligence	Descriptive statistics			Correlation coefficients*			
	M(SD)	Min	Max	Optimism/ Adjusting of emotions	Assessment of the excitements	Social skills	Application of excitement
Optimism/ Adjusting of emotions	49.8(7.72)	17	92	-	-	-	-
Assessment of the excitements	33.5(6.62)	12	45	0.485*	-	-	-
Social skills	38.5(1.07)	14	50	0.531*	-	-	-
Application of excitement	22.4(0.54)	6	61	0.775*	0.374*	0.462*	-

*P < 0.001, P value based on Chi Square test

Table 3. Relationship of emotional intelligence structures with sleep quality

Variables	Sleep quality		*P*-value
	desirable	undesirable	
Optimism/ Adjusting of emotions	50.9(8.23)	48.8(6.45)	0.048
Assessment of the excitements	32.8(5.48)	34.5(5.33)	0.018
Social skills	38.3(4.96)	38(4.33)	0.638
Application of excitements	22.6(5.27)	21.6(3.44)	0.097
Emotional Intelligence	146.1(19.86)	144(15)	0.418

P value based on independent t-test

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Table 4. Correlation of Emotional Intelligence Structures with Sleep Quality and Students' Anxiety

Variables	Anxiety	Optimism/ Adjusting of emotions	Assessment of the excitements	Social skills	Application of excitements
Sleep quality	0.151*	-0.209*	0.162*	0.005	-0.119
Anxiety	—	-0.203*	0.017	0.032	-0.026
Emotional Intelligence	—	0.009*	0.723*	0.747*	0.787*

* P < 0.05, P value based on Spearman correlation test

Table 5. Relationship between demographic variables of students with emotional intelligence score

Variables	Categories	M(SD)	*P*- value
Major	Experimental	147.16(8.11)	0.169
	Mathematic	143.17(2.31)	
	Humanity	142.22(1.51)	
Kind of school	Governmental	144.18(3.35)	0.072
	Private	159.16(7.58)	
Participate in trial tests	Yes	145.16(1.75)	0.832
	No	144.20(5.89)	
Having brothers or sisters with experience of national entrance exam	Yes	145.17(4.19)	0.703
	No	144.19(3.88)	
Father's education level	Under the diploma	145.20(1.08)	0.723
	Diploma	145.14(3.76)	
	Academic	148.10(1.06)	
Mother's education level	Under the diploma	145.19(2.14)	0.739
	Diploma	143.17(6.44)	
	Academic	148.19(1.26)	

P value based on Chi Square test

According to the results of Pearson correlation coefficient, a reverse and significant correlation was found between optimism / adjustment of emotions with sleep quality and anxiety (P <0.05), so that students with optimism and emotional regulation had higher anxiety and lower sleep quality. A direct and significant relationship was seen between the exam excitement and anxiety (P <0.05); social skills and emotional utilization were not related to the students' anxiety and sleep quality Table 4.

Regarding the results of the independent t-test, no significant correlation was found between emotional intelligence and have auxiliary tests, and the presence of brothers or sisters with experience of national university entrance exam. Moreover, the results of ANOVA test showed no correlation between variables of field of study, type of school, and parents' education with emotional intelligence Table 5.

Discussion

Based on the results, the mean score of emotional intelligence among the senior high school students was higher than those reported in other similar national studies.[1, 18] In emotional intelligence and optimism / emotional regulation subscales, a significant correlation was observed between emotional intelligence and emotional regulation, but a moderately significant positive correlation was found between emotion and anxiety. People with high emotional intelligence have good emotional management, are able to emancipate negative emotions, and can achieve emotional stability and favorable conditions. Therefore, the higher levels of emotional intelligence leads to more emotional facilitation features in an individuals, which helps more coherent organization of thoughts, memory, and memory contents to deal with the issues and tensions related to the social environment.[19, 20]

In addition, the emotional facilitation feature with positive behavioral changes helps a person to reconcile with the environment and environmental stimuli better.[21] It should be noted that this finding of the present study is consistent with the results of other studies.[1, 22, 23] Based on the initial pattern of designing

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the emotional intelligence scale, four factors exist (emotional perception, emotional facilitation, emotional cognition, and emotional management) that are inversely related to psychological disorders such as anxiety, depression, and irritability.[21] The results of this study indicated a positive correlation between emotional intelligence and academic performance of students, but no correlation was observed between total score of emotional intelligence, sleep quality score, and anxiety scores. In line with this study, numerous studies have shown that higher emotional intelligence is associated with better academic performance.[14, 18, 24-26]

Petrides et al. found that emotional intelligence was the predictor of academic achievement and students with higher emotional intelligence had better grades and academic performance than others.[14] According to the results, Mehrabian introduced emotional intelligence as a factor for job and academic achievement.[27] The present study showed that emotional intelligence had no significant relationship with emotional intelligence and students' demographic variables, including participation in experimental tests and having brothers or sisters with the experience of taking national entrance exam, field of study, type of school, and parents' education. Many studies investigated the relationship between socioeconomic factors and various psychological characteristics. The Safavi and Nadi study found a relationship between emotional intelligence and exam anxiety with two variables including academic major and having brother or sister with the experience of taking national university entrance exam in past year. But, other demographic characteristics were not significantly correlated with emotional intelligence and exam anxiety.[24, 26, 28]

However, the findings of some studies showed that improvement in the status of some demographic characteristics such as education, income, and job status increased the emotional intelligence and high emotional intelligence could lead the individuals to upper social classes.[29] Exam anxiety can be considered as an effective factor in impaired sleep quality. The prevalence of impaired sleep quality among the senior students of the present study was 49.4%, which indicates poor sleep quality in this group. Furthermore, the adolescence age can lead to adverse and undesirable consequences, such as stress and excitement. Of the four emotional intelligence constructs, optimism (emotional regulation) and emotional intelligence had the highest relationship with quality of sleep. Considering the significant relationship of these two components with stress and by taking into account the increased level of stress in students, it can be concluded that higher emotional intelligence can improve the sleep quality of students. The relationship between anxiety and sleep quality was also observed in other studies.[30, 31]

However, the present study was exposed to limitations due to the characteristics of the research community including different levels of the pressure set by the families, societies, and schools. However, considering the three important psychological factors including emotional intelligence, exam anxiety, and sleep quality, some of the important demographic variables of the students are related to sleep quality and anxiety. Furthermore, these results can be used to improve the students' conditions, reduce their stress, and strengthen their emotional intelligence to cope with anxiety.

Conclusion

The prevalence of undesirable sleep quality was high among the senior high school students due to the exam anxiety and stress. In addition, the average score of emotional intelligence was high, which can help the students to overcome their excitement and environmental anxiety. Therefore, providing an educational course on emotional intelligence skills can be effective in reducing the effects of academic stress and its undesirable effects on various aspects of life, including sleep quality.

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