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High School Female Students' Overweight Toward Emotional Intelligence

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ABSTRACT

Introduction: The prevalence of overweight and obesity is increasing at an alarming rate. They both have two-way communication with one's emotional stresses and psychological distresses.

Methods: This research is a descriptive-correlation study. The sample size included 370 female high school students in Gonbad, Galikesh, Azadshahr, and Kalaleh, in the east of Golestan province (Iran) in 2018. To select the participants, 370 students with a body mass index (BMI) between 25 and 29.9 kg/m^2 were selected as samples, and the Emotional Intelligence (EQ) questionnaire was handed out Pearson's correlation and regression analyses were also employed in this study ($p<0.05$).

Results: The results demonstrated that there is a direct, yet inverse relationship between students' total EQ (r= -0.465, p= 0.01), intrapersonal (r= -0.421, p= 0.01), interpersonal (r= -0.325, p= 0.01), adaptability (r= -0.391, p= 0.01), stress management (r= -0.401, p= 0.01), general mood (r= -0.383, p= 0.01), and their overweight. Also the Regression Analysis findings show that the EQ sub-scales are significant predictors for overweight R2 = 0.431, F = 39.457, and (p= 0.00). It suggests that the higher the EQ and its subscales scores among the students increase, the less weight they own, and vice versa.

Conclusion: The findings of this study will enhance social public awareness of the side- effects of overweight, equipping the public with some counseling to lose weight through using EQ for students suffering overweight.

Keywords: Psychology, Emotional Intelligence, Overweight, Golestan province.

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Introduction

Today, with an incredibly increasing pace, overweight and obesity are becoming a potential threat to health in the developing world (1). Overweight and obesity is a complex reaction between genetic, physiological, psychological, and socio-cultural-economic factors. On the other hand, obesity and death are considered global problems that affect not only adults but also children (2-3). Recent studies indicate an increase in the prevalence of obesity in different countries. The prevalence of obesity in Iran also shows an increase in childhood obesity in line with other countries. The prevalence of obesity among school-age children in Iran has been reported as 5 to 10% (4-5).

Overweight and obesity affect psychological and mental health during teenage, youth, and adulthood noticeably (6). Young people who do not have a suitable weight often refrain from engaging in social activities. It also causes some mental disorders (7). Overweight and obesity can be easily recognized and prevented, and their early diagnosis provides timely intervention. Knowing the main cause of weight change and inappropriate nutritional behavior can help achieve a proper weight (8).

Likewise, in the scope of medicine and psychiatry, one of the most remarkable conflicts between body and mind observed in the literature is obesity and overweight. Obesity and overweight have a dual relationship with an individual's emotional pressure and psychological turmoil. Psychiatric disorders, acute mental stress, psychological issues, and EQ can cause obesity and weight gain. EQ concept has a social-psychological connotation and is known as a set of non-cognitive capabilities and skills, which affect one's capacity to deal with external requests and stresses. In fact, due to a lack of self-confidence, obese people may easily succumb to social pressures under various situations, so in terms of EQ, they are considered poor (9)-(10).

Most researchers believe that overweight and obesity are complex issues that contribute to metabolic, nutritional, and psychosocial factors. Research has also proven that obese people suffer from high levels of negative mood and emotional mismanagement. When a person believes eating improves mood, in response to his negative emotions, he will tend to eat more to enhance his temper (11). Snack, Angels, Johnsons, and Vanastryn (12) have shown the negative effect of excitement among obese people on their eating patterns. Since emotional eating is defined as a useful strategy to deal with negative emotions such as stress, loneliness, boredom, anxiety, and the like (13), studies conducted in emotional eating have attempted to explain overweight and obesity in this scope. Hence, they have shown that in response to negative emotional states, obese people eat much more than people with normal weight (14).

Studies show a significant relationship between obesity in children and adolescents and a wide range of diseases such as hypertension, type 2 diabetes, and cardiovascular disease (15). More than 50% of obese children become obese in adulthood and develop the metabolic syndrome (16). Obesity not only affects the physical health of children but also has a devastating effect on the mental health of children and adolescents (17-18). The results of a large study showed that emotional intelligence can be a predictor of various life outcomes, including personal health. Emotions can motivate you to act or to refrain from action. (19-20). Emotional intelligence, like IQ, is a predictor of success and social adjustment. Moreover, it is sometimes said that intelligence plays a more important role in achieving academic and professional success for children and adolescents (21-22). Many studies have been done in this regard. For example, in the study of Movahedi et al. (2015), overweight was measured on 71 children aged 11-7 years according to the BMI standard body mass index. Overweight children were significantly less emotionally intelligent than the normal children. Also, in this study, obesity in girls and boys did not show a significant difference in decreasing emotional intelligence, but a significant and negative relationship was observed between increasing body mass index and

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decreasing emotional intelligence (23). In the study of Wong et al. (2011) to investigate the correlation between EQ, behaviors, and eating habits in 118 students, the results showed that the management of emotions and feelings was associated with eating behaviors (24).

Although physiological factors- fat regulation and metabolic rate- are important factors in determining body weight, undoubtedly, psychological overeating and mental factors such as emotional arousal and improper management of emotions can also lead to obesity. Today, according to the increasing rate of overweight and obesity, the number of clinic treatment regimens has greatly doubled. However, it seems that since these clinics do not take advantage of such psychological interventions, especially emotional arousal and emotional management, in their health diet programs and physical activities, these methods have had no or little effect on lessening weight and keeping fit have faced failure. Thus, in the case of fat people suffering overweight, it is possible to use suitable programs, sports activities, psychological and emotional interventions, and emotional management or EQ, which is the main aim of the present study to monitor their weight.

According to the theories suggested about EQ and emotion management, it seems that EQ is one of those concepts, which affect the rate and extent of people's weights. Following the mentioned review, the purpose of this study was to investigate the relationship between EQ and its components (intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood) and overweight in female high school students in East Golestan province, Iran. All these ideas and objectives are reflected in the following hypotheses:

• The EQ scale and sub-scales will be predicted through levels of overweight for female high school students in East of Golestan province, Iran.

• The EQ scale and sub-scales will correlate negatively with overweight female high school students in East of Golestan province, Iran.

Methods

This research is a descriptive-correlational study. The statistical population included all-female high school students of Gonbad, Galikesh, Azadshahr, and Kalaleh, in the East of Golestan province, (Iran) in 2018, which consisted of 8923 students. To select the participants among the study population, 370 students with a body mass index (BMI), between 25 and 29.9 kg/m² were selected as samples, and the EQ questionnaire was handed out. The body mass index of each student was calculated based on the ratio of weight (kg) to the square height (sqm^2). Pearson's correlation and regression analyses were also employed in this study. In this research, to the normal distribution of quantitative variables, the Kolmogorov-Smirnov test was applied. Correlations between variables were computed through Pearson's Correlations method. It aimed to examine the degree of association between the measures of EQ scale and sub-scales with overweight.

Research tool: The research instrument consisted of Bar-On & Parker's Emotional Intelligence Questionnaire (25).

Emotional Intelligence Questionnaire (EQ- i YV)

The questionnaire, so-called Emotional Intelligence Questionnaire (EQ- i YV), was proposed and built by Bar–On & Parker (2000) based on the Bar-On EQ model for a 7 - 18 year- old population (25). The questionnaire has 60 questions and five subscales, including intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood. Test responses were also set on a four-degree range from strongly agree to strongly disagree. This questionnaire used frequently abroad to measure EQ of such age group was translated by Jafar Shabani (2011) to measure EQ among Iranian teenagers in Gorgan city. To calculate and evaluate its reliability, it was conducted in a 54- participant population, and its Cronbach's alpha for EQ was 0.722 and for the subscales: intrapersonal skills, 0.720, interpersonal skills, 0.722, compatibility, 0.711,

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stress management, 0.709, general creation, 0.734, and the reliability score of this sample (n=54) was r=0.86. This experiment, which was conducted twice with an interval of two weeks (26)-(27)-(28), indicated the appropriateness of the Persian version for conducting the research.

Measuring overweight

In most cases, doctors use a special equation, body mass index, to diagnose overweight and obesity based on height and weight. When a person's body mass index varies between 25 and 29.9 kg/m², the person is overweight, and if it is between 25 and 39.9 kg/m², he is obese. In this study, the body mass index was calculated formula developed by the Belgian statistician Adolphe Quetelet (29).

Relationship calculate (BMI) or body mass index =BMI= Weight (kg)/ height^2 (cm)

Results

Table 1 indicates the means and standard deviations for all the observed variables. The descriptive statistics were worked out to view the pattern of the score distribution. A perusal of Table 1 reveals that the Mean and Standard Deviation for EQ scale was 3.10 (38), for the Weight was 77.22 (7. 34),, for the Height was 164.22 (3. 35), for the BMI was 27.67 (3. 87), (Table 1).

Table 1. Descriptive statistics of the score of the variables of the research

Variables	Minimum	Maximum	Mean	SD
Emotional Intelligence (EQ)	2.25	3.71	3.10	.38
EI Sub-Scales				
Interpersonal	1.20	3.88	3.11	.36
Intrapersonal	1.00	4.00	2.45	.60
Adaptability	1.50	4.00	2.81	.42
Stress management	1.20	3.54	2.48	.53
General Mood	1.90	3.82	3.21	.42
Weight	66.30	87.10	77.22	7.34
Height	157.10	168.10	164.22	3.35
BMI	25.56	29.90	27.67	3.87

Not. N= 370

Correlations

The findings as depicted in Table 2 showed that, there was negatively significant relationship between students' total scores of EQ (r= -.465, P: 0.01), Interpersonal (r= -.421, P: 0.01), Intrapersonal (r= -.325, P: 0.01), Adaptability (r= -.391, P: 0.01), Stress Management (r= -.401, P: 0.01), General Mood (r= -.383, P: 0.01), and their overweight. Here the correlation of the EQ with overweight is negatively significant, which shows that the students with low EQ scale and sub-scales have high overweight scores, so it can be said that there is a negative association between the EQ scale and sub-scales with overweight scores (Table 2).

Regression Analysis

Regression Analysis provides an opportunity, with little ambiguity, to assess the importance of each of the predictors to the overall relationship. Tables 3 indicating the impact of the EQ dimension on overweight. Regression Analysis results for the Predictive of EQ Sub-scales on overweight are presented in Table 3.

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Table 2. Result of Pearson's Correlations between Variables

Variables	1	2	3	4	5	6	7
1. Total EI	**1**						
2. Interpersonal	.592**	**1**					
3. Intrapersonal	.558**	.493**	**1**				
4. Adaptability	.594**	.478**	.418**	**1**			
5. Stress Management	.548**	.468**	.447**	.504**	**1**		
6. General Mood	.523**	.458**	.573**	.518**	.488**	**1**	
7. Overweight	-.465**	-421**	-.325**	-.391**	-.401**	-.383**	**1**

** p < 0.01, * p < 0.05, N= 370

Table3. Results of Regression Analyses

Dependent Variables	Predictors	R^2	F	β	t	(*p*)
Overweight	(constant)	-.431*	39.457		16.072	0.000
	Interpersonal			-.671	-9.484	0.000
	Intrapersonal			-.231	-4.541	0.004
	Adaptability			-.249	-5.157	0.002
	Stress Management			-.371	-7.253	0.000
	General Mood			-.319	-6.950	0.001

Note: N= 370

The Regression Analysis findings show that the EQ sub-scales are significant predictors for overweight R^2 = .431, F = 39.457, and (p= 0.00). R2 value means 43.1% of the variance in overweight diseases is explained by EQ sub-scales. Based on the results of Regression Analysis model in this study, the sub-scales Interpersonal (β= -.671, p= 0.00), Stress Management (β=-.371, p= 0.00), General Mood (β= -.319, p= 0.01), Adaptability (β= -.249, p= 0.002), and Intrapersonal (β= -.231, p= 0.04), show significant contributions toward the prediction of overweight.

Discussion

The results of analyzing the hypotheses of the study indicated a significant relationship between EQ and its subscales and Overweight. These findings are in line with the findings of Feyzpour et al., Who showed that there is a relationship between obesity and cognitive intelligence and EQ (30). These findings were consistent with those of Fisher, Chen, and Katroman (31), indicating the fact that controlling emotional eating can help weight loss. The results of several other studies suggested that overeating occurred in response to various emotions plays a significant role in the etiology of Overweight (32, 33, 34). In addition, Makhet et al. (35), in their review, concluded that obese people suffer from high levels of negative mood. When someone believes eating improves his temper, he desires to overeat to manage and regulate his negative emotions. In addition, the results offered by Duggan et al. (14) showed that obese people consider eating excitement as a helpful strategy to deal with negative emotions. Therefore, it can be expected that getting familiar with EQ and the strategies applied to cope with negative emotions can be an effective way to reduce emotional eating and subsequently enhance weight loss and body mass index.

Scientific evidence suggested that emotions could have a negative impact on eating patterns (36). According to different studies, negative emotions such as anger, anxiety, and depression are associated with overeating (37). Tier (38) believes that eating and drinking is one of the ways used by people to manage their mood. So, it seems overeating is more a coping mechanism for dealing with emotional regulation and mood control than a way to satisfy physiological needs of hunger and thirst. Hence, it is expected that getting to know EQ, familiarizing people with their feelings and emotions, equipping them with strategies to

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distinguish rational and irrational beliefs about emotions, encouraging them to accept these negative feelings, and finally, educating them with proper ways to face and monitor them can assist them to choose the most appropriate reaction in emotional situations. Thereby, it would help them reduce emotional eating and lose weight and BMI rate.

Given these results, it appears that EQ and its subgroups are among the most critical issues affecting the students' fitness and mental and physical health. Therefore, a successful society can increase its knowledge of the ideas mentioned above. Additionally, it is required to transfer useful information on EQ to its elementary and secondary–level students to get informed of this issue. It should also use this knowledge practically in their nutrition diets and achieve physical fitness that contributes to physical and mental health. Also, societies where people are looking for physical and mental health should help increase awareness of EQ and its effects on Overweight and take effective measures to prioritize them more than other actions and programs. Such measures can be in the form of workshops such as: holding EQ workshops with the aim of familiarity with its components, including understanding and managing both positive and negative stresses, time management, assertiveness, and coping with negative emotions like stress anxiety, fear, and aggression.

limitation

As a limitation of this study, participants were selected from the Golestan province, so the results cannot be generalized to other Iran provinces. Another limitation is that participants included only female high school students. Therefore, it is not easy to generalize the findings to male students. Also, not paying attention to psychological variables, parents 'education status, and students' economic status are other limitations of this study that are effective in generalizing the findings.

Conclusion

The results of this study can create a new horizon to offer successful dietary programs and help people in their weight loss and fitness programs. Likewise, the findings of the present study attempt to enhance public awareness of the community in terms of the side- effects of overweight and to offer suitable scientific advice to take benefit of EQ and its constituents to lose weight, especially for students suffering overweight. Moreover, along with recommending diet and exercise, nutritionists can take advantage of training emotional intelligence and emotional management to the students to deal with overweight and obesity.

Authors' contribution

Study concept and design, Critical revision of the manuscript for important intellectual content, Statistical analysis, Administrative, technical, and Study supervision: Author (1). Drafting of the manuscript, data colaction, material support and Analysis and interpretation of data,: Author (2).

Conflict of interest

In this study, the authors did not report any potential conflicts of interest.

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