



## Effect and comparison of cognitive self-compassion and mindfulness on educational well-being of overweight students

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### **Original Article**

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### **Abstract**

Overweight and obesity are common issues that have increased in children and adolescents in recent years. Along the physical problems, the psychological state of these individuals has also been considered by researchers. The purpose of the present study was to investigate the effect of cognitive self-compassion and mindfulness on the educational well-being of overweight adolescent students. The research method was a pretest-posttest with a control group. The participants consisted of 60 male overweight students (each group, 20) who were selected through a purposeful sampling and were assigned to two experimental and one control groups. Two questionnaires including educational engagement scale and the pleasure of physical activity scale were used to collect data. One group received cognitive self-compassion and the other group received mindfulness training and the control group did not receive any training. According to the results that self-compassion training and mindfulness significantly increased academic engagement and enjoyment of physical activity. The findings showed that there was no difference between the two methods of increasing the pleasure of physical activity, but mindfulness training had a greater effect on increasing academic engagement. Overall, the results showed that these two methods could significantly increase the educational well-being of overweight students.

**Keywords:** Adolescent Well-being, Compassion, Mindfulness, Overweight, Students

### **Introduction**

Today, obesity and overweight in many developing countries have increased dramatically and it is the cause of many illnesses [1]. In Asian countries like Iran, obesity has been reported to be over 23% [2]. Estimates by the Tehran Lipid and Glucose Institute show that the prevalence of obesity was increased from 32.7% to 40.30% and in men, it was increased from 16.5% to 20.8% between 1999 and 2002 [3]. Obesity and overweight are highly prevalent in the countries of the world, especially in Iran.

The results of studies conducted on student societies indicate that obesity in school years is associated with numerous health problems [4] and that obesity threatens many students and has a significant impact on student performance [5].

However, accurate information about causes of obesity is not available, but the results show that the environmental conditions are affected in obesity and that a child with obese father or mother has a 50% chance of

being overweight and if both parents are obese, this chance will be 80%. Therefore, genetic factors play a significant role in this disorder [6]. The studies in Australia, Canada, England, and South Korea show that there is a strong correlation between obesity and education [7] and obesity and overweight affected on various aspects of life, including academic achievements and social skills of children. The obese children deprived of their friends and relatives, have poor social skills and are at high risk for psychosocial problems. Poor social skills and social problems those are associated with obesity and overweight result in poor educational performance and ultimately poor educational self-concept in obese and overweight students [8,9]. The findings indicate that academic achievement is positively correlated with physical fitness. Obese students are less progressively educated due to lack of agility and are one of the biggest problems of obesity, its impact on academic achievement and academic well-being of students [10].

Educational well-being has recently been raised in educational psychology. Gutman and Vorhaus [11] consider school wellbeing as the enjoyment of physical activity in school (that students state that they like school and enjoy physical and bodily activity) and being engaged in school (i.e., do students are motivated by homework and schoolwork) and academic satisfaction (proper interaction with school officials, interest in studying). Vignoles and Meschi [12] assessed the attitude of students about the school, which was about enjoying school and engaging in school activities. The findings showed that students who had a positive attitude towards school at age 14 had the highest academic achievement at age 16; the students with the highest educational achievement at age 11 had the most positive attitude toward school by age 16.

The findings were inconsistent in regard to the enjoyment of school activities and academic achievement and attainment of higher grades in elementary schools so that communication with teachers and academic achievement in elementary school in the following years was

unrelated [13]. Gutman, Brown, Akerman, and Obolenskaya [14] argued that the school's wellbeing was significantly lower in boys than in girls. They reported that the level of the school's wellbeing is decreasing with increasing educational level and this decrease is higher among boys. As discussed, educational well-being has two components, one of which is educational engagement. Educational engagement is a structure that was first introduced to understand and explain academic failure and was considered as the foundation for reformist efforts in the field of education. One of the most important indicators of the quality of education and academic progress is educational engagement. Educational engagement includes behavioral, cognitive, and motivational components [15]. The behavioral component of academic engagement refers to visible educational behaviors such as effort and sustainability when faced with problems during homework assignments. The cognitive component of the educational engagement is metacognitive strategies when studying the content of the lesson and the motivational component includes the internal interest in the subject and the content of the lesson, value, and importance to them, and the existence of positive affection and lack of frustration, anxiety, and anger during the coursework [16]. In addition to the educational engagement, the pleasure of physical activity is one of the important concepts in the education of students, especially overweight students. Findings suggest that poorer physical activity is associated with negative emotions [17]. Undoubtedly, students enjoy the most in sport and physical activity, and the school should apply the conditions for this activity to increase the psychological well-being of the students.

Researchers suggest that increasing physical activity was correlated with physical and psychological health and preventing many diseases, including obesity. So that, an increase in physical activity in a child's life, predicting the level of activity and increasing physical

activity in adulthood [18]. Undoubtedly, obesity and overweight affected in students' physical activity as a primary factor.

Mindfulness is one of the most influential variables in the field of education. The mindfulness is an activity that focuses on the present moment, not past and future, which concentrate all the attention of the individual on the present moment [19]. Mindfulness simply focuses on the ongoing activity, while other stimuli that may distract the attention of the individual are ignored. This method is a kind of meditation or relaxation technique that by concentrating the thoughts, emotions and feelings of an individual on the moment increases the self-awareness of an individual about his experience [20]. The practice of mindfulness is historically rooted in Buddhism, and has spread from east Asia to other parts of the world in recent years [21].

A number of studies have showed that mindfulness can help the emotional regulation and mental well-being of children and adolescents [22]. Studies have also revealed that mindfulness can affect students' behavior and their level of anxiety [23,24]. Mindfulness has the potential to set students' behaviors and emotions by relaxing their minds and concentrating their attention on the moment.

Self-compassion is another variable that has received significant research attention in recent years. Researches have shown that self-compassion affects the mental well-being of individuals [25]. Based on the concept of self-compassion, a pleasant encounter with negative emotions instead of resisting or suppressing them can result in positive emotions and is associated with psychological abilities [26]. Also, self-compassion has similar effects on adolescents [27]. Neff considers self-compassion as an encounter with personal suffering and experiences a sense of care and kindness toward oneself, having a non-judgmental perception and attitude toward his disability and inadequacy, and understanding that difficult experiences are part of shared experiences all human beings. He sees the self-compassion structure with three interconnected components: self-kindness,

common humanity, and mindfulness. Other scholars have emphasized that self-compassion involves a fundamental link with others that are related to the mental well-being of people [28].

Accordingly, today one of the effective methods in the field of physical activity and nutritional behaviors of students at the schools is self-compassion and mindfulness training. Despite extensive foreign research in this regard, studies have shown that a few studies have been conducted in the field of educational well-being in Iran. Therefore, the purpose of this study was to investigate the effect of cognitive self-compassion and mindfulness training on student's educational well-being.

### **Method**

The present research is semi-experimental research with pretest and posttest design and control group. The statistical population of the study included all high school students in Tehran during the 2015-2016 academic year, that were overweight based on the index of Body Mass Index (BMI). In this study, purposive sampling method was used for the sampling and out of 32 schools based on their willingness to cooperate in the study, 60 boy students were selected as a sample on the basis of criteria I) a body mass index greater than 25 II) had an educational well-being problem that was identified by using the educational well-being questionnaire; III) they had a willingness and informed consent to participate in the research. In the first stage, the subjects were randomly divided into two experimental and one control groups. Subsequently, the experimental groups received self-compassion and mindfulness training, while the control group did not receive any training. Before and after 8 sessions of training, the educational engagement questionnaire and the pleasure from the physical activity scale were performed in the experimental and control groups.

In this study, the pleasure of physical activity and educational engagement questionnaire were used to assess educational well-being

two questionnaires. The educational engagement scale has been developed by Fredricks and Blumenfeld [15] in the form of 15 items that has three motivational, behavioral and cognitive components. This scale has five degrees Likert response and its scores range is between 15 and 75. The reliability of this questionnaire has been reported in the main study 0.88 and its validity has been confirmed by exploratory factor analysis. Talebi et al. [29] in an Iranian sample confirmed the psychometric properties of this scale using confirmatory factor analysis (RMSEA= 0.034) and the Cronbach's alpha's cognitive subscale was 0.74, behavioral 0.86, and motivational 0.79. In this research, Cronbach's alpha method was used to assess reliability. Cronbach's alpha was obtained for cognitive, behavioral and motivation subscales 0.75, 0.84 and 0.88 respectively. The pleasure of physical activity scale has 18 items that were made by Kendzierski and DeCarlo to assess the enjoyment of physical activity [30]. It has seven degrees Likert response scale and the range of scores is between 18 and

126. The designers of this questionnaire have reported the reliability of this questionnaire using the Cronbach's alpha method equal to 0.93 and confirmed its validity by exploratory factor analysis. In this research, Cronbach's alpha method was used to assess reliability. Cronbach's alpha was obtained at 0.78. Covariance analysis was used to test the research hypotheses by using SPSS-22 software version at 0.05 significant level. Covariance analysis was analyzed to investigate the difference between the pleasure of physical activity scores of overweight students in posttest of three groups with control and the pretest scores. Kolmogorov–Smirnov test (K-S) was used to ensure the normality of the data.

**Results**

The mean scores of academic engagement and pleasure of physical activity in mindfulness, self-compassion and control group were presented in pretest and posttest in Table 1.

**Table 1** Descriptive statistics of research variables in pretest and posttest

| Variable                      | Group           | Pretest |       | Posttest |      |
|-------------------------------|-----------------|---------|-------|----------|------|
|                               |                 | Mean    | SD    | Mean     | SD   |
| Educational engagement        | Mindfulness     | 53.82   | 6.44  | 68.05    | 4.42 |
|                               | Self-compassion | 52.88   | 5.46  | 59.88    | 2.80 |
|                               | Control         | 53.47   | 5.70  | 55.47    | 5.13 |
| Pleasure of physical activity | Mindfulness     | 67.35   | 7.367 | 92.82    | 7.09 |
|                               | Self-compassion | 68.35   | 10.09 | 91.28    | 6.56 |
|                               | Control         | 69.64   | 9.12  | 74.23    | 8.70 |

The results of the Kolmogorov–Smirnov test showed data distribution was normal. Levene's test also showed that homogeneity of variance was confirmed. The results of Table 2 show that the difference between the three groups in the variable of pleasure of physical activity is significant. Therefore, the Bonferroni test was used to find out the difference between the

means.

The results of the Bonferroni test show that there is a significant difference between the mindfulness and self-compassion groups with the control group in the posttest, but there wasn't a significant difference between the two groups of self-compassion and mindfulness in the pleasure of physical activity (Table 3).

**Table 2** One-way covariance analysis on mean of posttest scores of pleasure of physical activity

| Variable | SS      | DF | MS      | F     | Effect size | Sig.  |
|----------|---------|----|---------|-------|-------------|-------|
| Group    | 4585.44 | 2  | 3274.22 | 28.26 | 0.62        | 0.001 |
| Error    | 2724.98 | 57 | 80.47   |       |             |       |



**Table 3** Bonferroni test to compare the scores of groups in the variable of pleasure of physical activity

| Variable                      | Comparison                  | Mean differences | SD   | Sig. |
|-------------------------------|-----------------------------|------------------|------|------|
| Pleasure of physical activity | Mindfulness-self compassion | 1.54             | 2.91 | 0.79 |
|                               | Mindfulness-control         | 18.59            | 2.84 | 0.01 |
|                               | Self-compassion-control     | 17.05            | 2.66 | 0.01 |

The results of Table 4 showed that the difference between the three groups in the variable of educational engagement is significant. Therefore, the Bonferroni test was used to find out the difference between the means.

The results of the Bonferroni test show that

there is a significant difference between the mindfulness and self-compassion groups with the control group in the posttest. There is also a significant difference between the two groups of self-compassion and mindfulness in this variable favor of the mindfulness group (Table 5).

**Table 4** One-way covariance analysis on the mean scores of posttest

| Variable | SS      | DF | MS     | F     | Effect size | Sig.  |
|----------|---------|----|--------|-------|-------------|-------|
| Group    | 1591.30 | 2  | 795.65 | 44.57 | 0.61        | 0.001 |
| Error    | 1017.91 | 57 | 17.85  |       |             |       |

**Table 5** Bonferroni test result for comparing the scores of the groups

| Variable               | Comparison                  | Mean differences | SD   | Sig. |
|------------------------|-----------------------------|------------------|------|------|
| Educational engagement | Mindfulness-self compassion | 8.17             | 1.38 | 0.01 |
|                        | Mindfulness-control         | 12.58            | 2.84 | 0.01 |
|                        | Self-compassion-control     | 4.41             | 2.66 | 0.01 |

## Discussion

Results of the current research indicated that mindfulness training can increase the pleasure of physical activity and academic engagement in overweight students. The results are consistent with the research by Felver et al. [31] Cox et al. [32] and Singh et al. [33]. To explain this finding, it can be argued that mindfulness can play an important role in increasing students' academic satisfaction due to their significant role in increasing psychological well-being in obese and overweight people. Cox et al. [32] found that mindfulness training had a significant effect on self-concept and health. Mindfulness training can improve psychological performance and reduce the negative effects of stress on students. This causes that mindfulness plays an important role in the academic engagement of students. Mindfulness, especially in terms of the effect on increasing student mood, can regulate blood pressure and cortisol levels and increase the level of well-being [33].

Also, self-compassion training increased the pleasure of physical activity and academic engagement. The results are consistent with Cox et al. [32], Kelly et al. [33] and Wasyliki et al. [34]. The more self-compassion people are less likely to develop nutritional disorders. Self-compassion by increasing physical activity can decrease the number of nutritional disorders [35]. On the other hand, self-compassion can be a supportive variable such as the development of a healthy self-concept and the reduction of concern in this field, to reduce nutritional disorders [36]. Ferreira et al. [37] found that high self-compassion was correlated with the low amount of weight loss in women with eating disorders. By controlling the body mass index and self-confidence, self-compassion was inversely related to overeating. Therefore, these changes that were created by self-compassion can adjust nutritional issues and may increase physical activity and pleasure of it.

Therefore, it can be argued that someone who is overweight, when he/she is injured, failed, or feels incapacitated for the body, applies self-compassion and understands himself/herself instead of ignoring the suffering or criticizes self. Also, the results indicated that the mindfulness training compare to self-compassion had a more important role in increasing academic engagement. The findings of this study are consistent with the results of Cox et al. [32], Kelly et al. [34] and Wasylikiw et al. [35]. One of the possible reasons for more effectiveness of Mindfulness training is the cognitive and emotional content of mindfulness training compared to the purely emotional nature of self-compassion training. The cognitive and emotional nature of mindfulness training adds more resources to increase academic engagement and change in the positive direction.

It should be noted that along with the results obtained, there are some limitations that should be taken into account in the generalizability of the findings. The limited sample of high school male students and the use of self-report questionnaires were the most important of these limitations.

### Conclusion

Overall, the results showed that mindfulness and self-compassion training can significantly improve the educational well-being of overweight students, and can be used as effective strategies for increasing student's educational well-being.

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### Contribution

The idea and design of the study: HL  
Collecting and analyzing data: RN  
Writing and Preparing the Article: HP

### Conflict of Interest

"The authors declare that they have no competing interests."

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