

# The relationship between emotional eating and mindfulness among wrestlers

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**Abstract.** *Study Objectives:* The aim of this study was to examine the relationship between wrestlers' emotional eating and mindfulness levels and sub-dimensions of these scales. *Methods:* 382 wrestlers (58 women and 324 men) who were actively wrestling in Turkey participated in the study as volunteers. Personal information form, Emotional Eating Scale (EEQ-TR) and Mindfulness Inventory for Sport (MIS) were used as data collection tools in the study. Independent sample t-test and Pearson correlation analysis test were used to analyse the data. *Results:* As a result of the study; according to the variable of being national athlete, when the emotional eating and the level of mindfulness were examined, it was determined that the national athletes had a higher average than the non-national athletes in terms of the type of food, the sub-dimensions of guilt and emotional eating ( $p < 0.05$ ). It was determined that there was no difference in the mindfulness inventory and its sub-dimensions according to being national athlete variable ( $p > 0.05$ ). When the relationship between MIS and its sub-dimensions (disinhibition, the type of food, the feeling of guilt), and EEQ and its sub-dimensions (awareness, non-judgment, and refocusing) were examined, it was found that there was a negative correlation between disinhibition sub-dimension and awareness ( $r = -.145$ ;  $p = < .01$ ), refocusing ( $r = -.203$ ;  $p = < .01$ ), and MIS ( $r = -.129$ ;  $p = .05$ ). Moreover, there was a weak negative relationship between the type of food and refocusing sub-dimension ( $r = -.132$ ;  $p = < .05$ ), and a weak positive correlation was found between guilt, non-judgment ( $r = .182$ ;  $p = < .01$ ), refocusing ( $r = .101$ ;  $p = < .05$ ), and MIS ( $r = -.113$ ;  $p = < .05$ ). A weak negative correlation was found between EEQ, awareness ( $r = -.112$ ;  $p = < .05$ ), refocusing sub-dimensions ( $r = -.127$ ;  $p = < .05$ ) and non-judgment ( $r = .124$ ;  $p = < .05$ ). It was determined that there was a very weak positive correlation with the) sub-dimension and it was determined that there was a very weak positive correlation with the non-judgment sub-dimension ( $r = .124$ ;  $p = < .05$ ). *Conclusion:* The physically and psychologically negative effects of emotional eating may cause the level of awareness of athletes to decrease. However, undesirable results may occur in the training programs and preparation processes of the athletes.

**Keywords:** Emotional Eating, Mindfulness, Wrestling, Athlete

## Introduction

Food cravings which is an impulse and emotional need that directs the desire to eat to a specific food rather than a physiological demand, it is also expressed as an eating problem (1,2). It has been stated that emotional eating behaviour is a response to various negative emotions felt by people in various psychological processes (3,4,5,6).

Duarte et al., (2015) stated that the emotional eating desire to emerge causes more in the face of psychological situations such as anxiety, depression and anger in people who have emotional eating behaviour. However, it has been suggested that emotions have the ability to prevent people's mental processes, especially according to the severity of negative emotions (8,9,10). The low ability of the human to manage emotions arising from emotional eating is related to coping

his/her skills and personal awareness (11,12). According to various researchers (13,10), the most important way to keep emotional eating under control is to be aware of which emotions trigger emotional eating. According to Kabat-Zinn (14) mindful attention awareness, which plays an active role in the management and regulation of psychological processes, is defined as a self-regulation skill that enables to perform the task experienced at that time without judgment and according to the requirements of the moment. Masheb and Grilo (15) also stated that emotional eating behaviour is one of the eating disorders. Sala et al. (16), on the other hand, have stated that awareness is a key task for eating disorders, and also have shown that mindfulness can be used as an alternative emotion regulation skill for the perception, regulation and management of emotions that occur before, during and after sports performance (17,18,19).

As one of the most important reasons why the concept of awareness has an important place in sports performance, it is stated that mindfulness-based practices play an active role in preventing the desire to eat excessively by increasing emotion regulation skills (20). In studies showing the relationship between mindful attention and emotional eating, mindful attention exercises reduce the desire to eat (21), prevent overeating (22) and a decrease in body mass index (17,23). Wrestling is a combat sport that includes high-intensity energy demands in a short time against the opponent (24). For athletes in a branch with high-intensity energy consumption, eating disorder is more common in sports where a certain amount of low or excess weight is important for performance during the competition period (25,26,27). As a result, it has thought that the awareness on the emotional and physical determinants which increases the demands of emotional eating in athletes may enable them to control the desire to eat (28). The purpose of this study is to examine the relationship between mindfulness of the eating tendencies of athletes, which are caused by various factors (emotionally and physically) in wrestling, in which weight loss plays an effective role for a successful sports performance.

## Material and Method

### *Study Sample*

The sample of the study consists of 382 wrestlers (58 women and 324 men) determined by convenience sampling method. The mean age of the wrestlers was  $\bar{X} \pm SD = 22.32 \pm 6.24$  and the sports experience mean was  $\bar{X} \pm SD = 19.82 \pm 9.24$  years.

### *Data collection tool*

In the study, personal information form, emotional eating scale and mindfulness inventory for sport were used to describe the demographic characteristics of wrestlers.

*Emotional Eating Scale (EEQ-TR)*: In order to determine the emotional eating levels of athletes, the emotional eating scale, consisting of 10 items and three sub-dimensions (Disinhibition 5, Type of food 3, Guilt 2), which was developed by Garaulet et al. (4) and adapted to Turkish by Arslantaş et al., (29) to determine the eating behaviours of overweight and obese people, and the scale consists of four options (Never-0, Sometimes-1, Generally-2 and Always-3). The highest score obtained from the scale indicates that emotional eating behaviour is also high. The internal consistency coefficient of the scale was found to be .77 for disinhibition, .66 for the type of food, and .61 for the feeling of guilt. In this study, the internal consistency coefficient of the scale was found to be .87.

*Mindfulness Inventory for Sport (MIS)*: The scale developed by Thienot et al. (2014) to determine the mindfulness level of wrestlers was adapted to Turkish by Tingaz (2020). The scale, which consists of 15 items and 3 sub-dimensions (Awareness, Non-judgment, and Refocusing), was 6-point Likert type. The Cronbach Alpha coefficient of the scale was calculated as .82, awareness for sub-dimensions .81, non-judgment 70, and .77 for refocusing. The lowest score that can be obtained from the scale was expressed as 40 and the highest score as 65. In this study, the Cronbach Alpha coefficient of the scale was found to be .79, .67 for awareness, .73 for non-judgment, and .76 for refocusing.

### Statistical analysis

SPSS 20 statistics program was used in analyzing the data. Whether or not the variables had normal distribution or not was analyzed with Kolmogorov-Smirnov and Shapiro Wilk tests the variables had normal distribution ( $p>0,05$ ). Comparisons among the groups were performed using an independent sample t-test for two groups. A Pearson correlation analysis was used to determine the relationship between variables. Significance was set at  $p<0.05$  and  $p<0.01$  respectively.

### Results

In this part of the study, statistical information about the differences between the emotional eating

and the mindful attention awareness scales and their sub-dimensions according to the variables of gender and being a national wrestler and the relationship between them will be included.

Table 1 showed the results of the t-test table depending on national athlete status variable. According to the national athlete status variable, disinhibition, type of food, the sub-dimensions of guilt and the emotional eating scale were found to be statistically different between the groups in terms of their general mean status ( $p<0.05$ ). It was determined that national athletes have a higher mean than non-national athletes in terms of disinhibition, food type, guilt and emotional eating level. It was determined that there was no statistically significant difference between the groups in the overall mean and sub-dimensions of the mindful attention awareness scale ( $p>0.05$ ).

**Table 1.** T-Test Results of General Health and Emotional Eating Scales According to Being National Athlete

Variables	National Athlete Status	n	$\bar{X}\pm SD$	t	p
Disinhibition	Yes	144	.29±.23	3.473	0.001*
	No	238	.21±.18		
Type of food	Yes	144	1.34±.67	2.858	0.005*
	No	238	1.13±.70		
Guilt	Yes	144	.97±.50	2.397	0.017*
	No	238	.84±.51		
EEQ	Yes	144	.63±.26	4.412	0.000*
	No	238	.52±.24		
Awareness	Yes	144	4.81±.70	-.319	0.750
	No	238	4.83±.73		
Non-judgement	Yes	144	4.25±.90	.897	.370
	No	238	4.16±1.00		
Refocusing	Yes	144	4.75±.85	.090	.928
	No	238	4.74±.78		
MIS	Yes	144	4.60±.61	.385	.700
	No	238	4.58±.61		

\* $p<0.05$

**Table 2.** Correlation Table of the Emotional Eating Scale and the Mindful Attention Awareness Scale

Variables	1	2	3	4	5	6	7	8
<b>Disinhibition</b>	1	.330**	.171**	.720**	-.145**	.033	-.203**	-.129*
<b>Type of food</b>		1	.208**	.781**	-.028	.066	-.132*	-.382
<b>Guilt</b>			1	.592**	-.069	.182**	.101*	.113*
<b>EEQ</b>				1	-.112*	.124*	-.127*	-.503
<b>Awareness</b>					1	.260**	.385**	.696**
<b>Non-judgement</b>						1	.309**	.761**
<b>Refocusing</b>							1	.751**
<b>MIS</b>								1

\* $p < 0.05$ ; \*\* $p < 0.01$

When the relationship between the emotional eating scale and its sub-dimensions, i disinhibition, the type of food, the feeling of guilt, and mindfulness inventory scale and its sub-dimensions, non-judgment and refocusing sub-dimensions were examined in Table 2, it was determined that there was a very weak negative relationship between disinhibition and awareness sub-dimensions ( $r = -.145$ ;  $p < 0.01$ ), refocusing ( $r = -.203$ ;  $p < 0.01$ ), and MIS ( $r = -.129$ ;  $p < 0.05$ ). It was observed that there was a very weak negative correlation between the type of food and refocusing sub-dimensions ( $r = -.132$ ;  $p < 0.05$ ). It was determined that there was a very weak positive correlation between guilt and non-judgment ( $r = .182$ ;  $p < 0.01$ ), refocusing sub-dimensions ( $r = .101$ ;  $p < 0.05$ ), and MIS ( $r = -.113$ ;  $p < 0.05$ ). Moreover, it was determined that there was a very weak negative correlation between EEQ and awareness ( $r = -.112$ ;  $p < 0.05$ ), refocusing ( $r = -.127$ ;  $p < 0.05$ ), and non-judgment sub-dimensions ( $r = .124$ ;  $p < 0.05$ ).

## Discussion and Conclusion

The importance of wrestling, which is one of the oldest branches in the world at the Olympics level, causes the physiological and psychological demands of

wrestlers to increase their performance at an elite level. Federations, clubs, and nutritionists were prepared different training and nutrition programs to elite athletes for the top performance of athletes in wrestling, where success was so significant. Because wrestling is an anaerobic-based weight sport, as it involves a high level of energy demand (32,24,33), which required a high heart rate (34) during the competition, much more than different hormonal responses (35). The negative psychological effects resulting from these demands lead athletes to a behaviour such as emotional eating. In the face of this situation, with the development of an alternative coping strategy, a more efficient coping style can be created in terms of improving and increasing performance that would not negatively affect performance (36). Studies on the importance of investigating the effects of weight gain or reduction, which played a key role in success performance such as wrestling, on emotional eating, exercise, and performance are still up-to-date. According to the findings of our study, it was seen that elite wrestlers who are at the national team level have higher emotional eating levels at the level of food type, guilt, and EEQ than athletes who do not play in the national team. In the researches, it was stated that the desire to eat in elite athletes were not caused by hunger, but by emotional eating (37,36), due to the careful diet and intense

emotional experience that was one of the determinants of physical performance, together with the physiological and psychological processes affected by different factors (38). Singh (39), consuming foods that were high in sugar and fat and not included in nutrition programs for elite athletes, Konttinen et al. (40) also stated that such nutrition causes a positive change in mood and a decrease in cortisol level and, it was stated that it decreased in the stress level. According to these results, it can be stated that the desire to eat under intense stress and pressure in individuals who do sports at the elite level leads to the situation of responding to psychological demands arising from negative mood rather than meeting the physical and physiological requests required by sports.

In the present study, when the relationship between emotional eating and its sub-dimensions and mindfulness was examined, the disinhibition sub-dimension and awareness ( $r=-.145$ ;  $p= <.01$ ), refocusing ( $r=-.203$ ;  $p= <.01$ ) and it was found that there was a very weak negative correlation between the MIS ( $r=-.129$ ;  $p= <.05$ ). Moreover, it was observed that there was a very weak negative correlation between the type of food sub-dimension and refocusing ( $r=-.132$ ;  $p= <.05$ ). Besides, it was determined a very weak positive correlation between guilt and not judgment ( $r=.182$ ;  $p= <.01$ ), refocusing ( $r=-.203$ ;  $p= <.01$ ), and MIS ( $r=-.129$ ;  $p= <.05$ ). It was determined that there was a very weak negative relationship between the EEQ and awareness ( $r=-.112$ ;  $p= <.05$ ) and refocusing ( $r=.127$ ;  $p= <.05$ ) sub-dimensions, and a very weak positive correlation with the non-judgment ( $r=.124$ ;  $p= <.05$ ) sub-dimension. When the significant relationship between guilt, emotional eating, refocusing, and non-judgment sub-dimensions were examined, it can be said that emotional eating manipulated the level of awareness. In studies, although emotional eating seems like a simple and satisfying coping strategy against negative mood when it created a habit and created a physically and psychologically challenging situation, it can create different problems and weight problems by negatively affecting emotion regulation skills (36,41).

According to the results of the research, the negative effects of emotional eating can lead athletes to

decrease their awareness or the manipulation of emotions, thus, weight gain and physical and psychological performance decrease with the deterioration of the diet. For athletes who have a long training time and intensity, this will not produce satisfactory results. Therefore, with the increase of mindful attention awareness practices for athletes, it may be possible to eliminate the physical and mental declines caused by emotional eating.

## References

1. Greeno CG, Wing RR, Shiffman S. Binge antecedents in obese women with and without binge eating disorder. *J Consult Clin Psychol*. 2000;68(1):95–102.
2. Lafay L, Thomas F, Mennen L, et al. Gender differences in the relation between food cravings and mood in an adult community: Results from the fleurbaix laventie ville santé study. *Int J Eat Disord*. 2001;29(2):195–204. doi:10.1002/1098-108x(200103)29:2<195::aid-eat1009>3.0.co;2-n
3. Adriaanse MA, de Ridder DT, Evers C. Emotional eating: eating when emotional or emotional about eating?. *Psychol Health*. 2011;26(1):23–39. doi:10.1080/08870440903207627
4. Garaulet M, Canteras M, Morales E, et al. Validation of a questionnaire on emotional eating for use in cases of obesity; the Emotional Eater Questionnaire (EEQ). *Nutr Hosp* 2012; 27:645–51.
5. Koball AM, Meers MR, Storfer-Isser A, Domoff SE, Musher-Eizenman DR. Eating when bored: revision of the emotional eating scale with a focus on boredom. *Health Psychol*. 2012;31(4):521–524. doi:10.1037/a0025893
6. Soylu Y, Atik F, Öçalan M. Ergenlerin Sosyal Görünüş Kaygısı Düzeylerinin İncelenmesi (Kırkkale İli Örneği). *Sportif Bakış: Spor ve Eğitim Bilimleri Dergisi* 2017, 38–45.
7. Duarte C, Pinto-Gouveia J. Returning to emotional eating: the emotional eating scale psychometric properties and associations with body image flexibility and binge eating. *Eat Weight Disord*. 2015;20(4):497–504. doi:10.1007/s40519-015-0186-z
8. Waller G, Babbs M, Milligan R, Meyer C, Ohanian V, Leung N. Anger and core beliefs in the eating disorders. *Int J Eat Disord*. 2003;34(1):118–124. doi:10.1002/eat.10163
9. Fairburn CG, Cooper Z, Shafran R. Cognitive behaviour therapy for eating disorders: a “transdiagnostic” theory and treatment. *Behav Res Ther*. 2003;41(5):509–528. doi:10.1016/s0005-7967(02)00088-8
10. Meyer C, Leung N, Barry L, De Feo D. Emotion and eating psychopathology: links with attitudes toward emotional expression among young women. *Int J Eat Disord*. 2010;43(2):187–189. doi:10.1002/eat.20659



11. Young DA. Emotional eating, stress, and coping styles in early adolescence (Doctoral Thesis). Available from ProQuest Dissertations & Theses Global. 2016. (1834505601).
12. Berbette BJ. An acceptance and commitment therapy group workshop intervention for emotional eating (Doctoral Thesis). Available from ProQuest Dissertations & Theses Global. 2015; (1733679994).
13. Gianini LM, White MA, Masheb RM. Eating pathology, emotion regulation, and emotional overeating in obese adults with Binge Eating Disorder. *Eat Behav.* 2013;14(3):309–313. doi:10.1016/j.eatbeh.2013.05.008
14. Kabat-Zinn J. Full catastrophe living: Using the wisdom of your mind to face stress, pain and illness. 1990, New York: Dell Publishing.
15. Masheb RM, Grilo CM. Emotional overeating and its associations with eating disorder psychopathology among overweight patients with binge eating disorder. *Int J Eat Disord.* 2006;39(2):141–146. doi:10.1002/eat.20221
16. Sala M, Shankar Ram S, Vanzhula IA, et al. Mindfulness and eating disorder psychopathology: A meta-analysis. *Int J Eat Disord.* 2020;53(6):834–851. doi:10.1002/eat.23247
17. Buffington BC, Melynk BM, Morales S, et al. Effects of an energy balance educational intervention and the COPE cognitive behavioral therapy intervention for division I U.S. air force academy female athletes. *Journal of the American Association of Nurse Practitioners* 2016; 28(4), 181–187. <https://doi.org/10.1002/2327-6924.12359>
18. Peña-Sarrionandia A, Mikolajczak M, Gross JJ. Integrating emotion regulation and emotional intelligence traditions: a meta-analysis [published correction appears in *Front Psychol.* 2019 Nov 27;10:2610]. *Front Psychol.* 2015;6:160. Published 2015 Feb 24. doi:10.3389/fpsyg.2015.00160
19. Gross JJ. Handbook of emotion regulation (2nd ed.). 2015; Guilford Press. ISBN 9781462520732
20. Leahey TM, Crowther JH, Irwin SR. A cognitive-behavioral mindfulness group therapy intervention for the treatment of binge eating in bariatric surgery patients. *Cogn Behav Prac* 2008; 15(4) 364–375 <https://doi.org/10.1016/j.cbpra.2008.01.004>
21. Alberts HJ, Mulkens S, Smeets M, et al. Coping with food cravings. Investigating the potential of a mindfulness-based intervention. *Appetite.* 2010;55(1):160–163. doi:10.1016/j.appet.2010.05.044
22. Kristeller JL, Hallett B. Effects of a meditation-based intervention in the treatment of binge eating. *J. Health Psychol* 1999; 4, 357–363.
23. Tapper K, Shaw C, Ilsley J, Hill AJ, Bond FW, Moore L. Exploratory randomised controlled trial of a mindfulness-based weight loss intervention for women. *Appetite.* 2009;52(2):396–404. doi:10.1016/j.appet.2008.11.012
24. Barbas I, Fatouros IG, Douroudos II, et al. Physiological and performance adaptations of elite Greco-Roman wrestlers during a one-day tournament. *Eur J Appl Physiol.* 2011;111(7):1421–1436. doi:10.1007/s00421-010-1761-7
25. Colak, A., Sahin, İbrahim, Soylu, Y., Koç, M. and Öcal, T. 2020. Weight loss methods and effects on the different combat sports athletes. *Prog Nutr.* 22, 1-S (May 2020), 119–124. <https://doi.org/10.23751/pn.v22i1-S.9803>.
26. Sundgot-Borgen J, Torstveit MK. Prevalence of eating disorders in elite athletes is higher than in the general population. *Clin J Sport Med.* 2004;14(1):25–32. doi:10.1097/00042752-200401000-00005
27. Smolak L, Murnen SK, Ruble AE. Female athletes and eating problems: a meta-analysis. *Int J Eat Disord.* 2000;27(4):371–380. doi:10.1002/(sici)1098-108x(200005)27:4<371::aid-eat1>3.0.co;2-y
28. Dalen J, Brody JL, Staples JK, Sedillo D. A Conceptual Framework for the Expansion of Behavioral Interventions for Youth Obesity: A Family-Based Mindful Eating Approach. *Child Obes.* 2015;11(5):577–584. doi:10.1089/chi.2014.0150
29. Arslantaş H, Dereboy F, Yüksek R, et al. Duygusal yeme ölçüğü'nin Türkçe çevirisinin geçerlik ve güvenilirlik çalışması. *Türk Psikiyatri Dergisi* 2020; 31(2), 122–30. <https://doi.org/10.5080/u23520>
30. Thienot E, Jackson B, Dimmoç J, et al. Development and preliminary validation of the mindfulness inventory for sport. *Psychol Sport Exerc* 2014; 15(1), 72–80. <https://doi.org/10.1016/j.psychsport.20>
31. Tingaz EO. Sporcu Bilinçli Farkındalık (Mindfulness) Ölçeği: Türkçe'ye Uyarlama, Geçerlik ve Güvenirlik Çalışması SPORMETRE 2020; 18(1), 71–80.
32. Miarka B, Soto DAS, Aede-Müñoz E. et al. Effects of Competitive Wrestling Bouts on Physiological Measures: A Systematic Review and Meta-analysis. *Orthop Traumatol Surg Res* 2020; 36(1), 34–51. <https://doi.org/10.1016/j.orthtr.2020.01.005>
33. Buford TW, Smith DB, Obrien MS, Warren AJ, Rossi SJ. Seasonal changes of body mass, body composition, and muscular performance in collegiate wrestlers. *Int J Sports Physiol Perform.* 2008;3(2):176–184. doi:10.1123/ijsp.3.2.176
34. Kafkas ME, Taşkıran C, ahin Kafkas A, et al. Acute physiological changes in elite free-style wrestlers during a one-day tournament. *J Sports Med Phys Fitness.* 2016;56(10): 1113–1119.
35. Fry AC, Schilling BK, Fleck SJ, Kraemer WJ. Relationships between competitive wrestling success and neuroendocrine responses. *J Strength Cond Res.* 2011;25(1):40–45. doi:10.1519/JSC.0b013e3181fef62f
36. Devonport TJ., Nicholls W, Chen-Wilson C. Emotional Eating: Implications for Research and Practice in Elite Sports Contexts. Ruiz MC, Robazza C (Eds.). (2020). Feelings in Sport: Theory, Research, and Practical Implications for Performance and Well-being 2020, New York; Routledge. <https://doi.org/10.4324/9781003052012>
37. Macht M, Simons G. Emotional eating.” *Emotion regulation and well-being.* 2011 Springer, New York, NY, 281–295.

38. Lane AM, Devonport TJ, Stanley DM, et al. The effects of brief online self-help intervention strategies on emotions and satisfaction with running performance. *Sensoria: A Journal of Mind, Brain & Culture* 2016; 12(2), 30–39. <https://doi.org/10.7790/sa.v12i2.441>
39. Singh M. Mood, food, and obesity. *Front Psychol.* 2014;5:925. Published 2014 Sep 1. doi:10.3389/fpsyg.2014.00925
40. Konttinen H, Männistö S, Sarlio-Lähteenkorva S, et al. Emotional eating, depressive symptoms and self-reported food consumption. A population-based study. *Appetite.* 2010; 54 (3), 473–479. doi:10.1016/j.appet.2010.01.014
41. Elfhag K, Rössner S. Who succeeds in maintaining weight loss? A conceptual review of factors associated with weight loss maintenance and weight regain. *Obes Rev.* 2005;6(1):67–85. doi:10.1111/j.1467-789X.2005.00170.x

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