



The Relationship Between Mindfulness and Happiness in Student-Athletes: The Role of Self-Compassion—Mediator or Moderator?

Emre Ozan Tingaz^{1,2} · Serdar Solmaz³ · Meryem Altun Ekiz⁴ · Burcu Guvendi⁵

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Abstract

In the present study, the mediating and moderating role of self-compassion in the relationship between mindfulness and happiness was examined through Structural Equation Modeling in student-athletes. Three hundred sixty-three individual and team-sport athletes (63.9% male; 35.8% female; 0.3% non-binary, $M_{age}=21.51$ $SD=3.33$) participating in the study were asked to fill out the Mindfulness Inventory for Sport, the Self-Compassion Scale, and the Oxford Happiness Questionnaire. There were significant positive correlations between mindfulness, self-compassion, and happiness. Structural equation modeling revealed that self-compassion did not have a moderator role in the relationship between mindfulness and happiness. On the other hand, self-compassion played a fully mediating role in the relationship between mindfulness and happiness in student-athletes. While these are correlational data that do not permit causal inferences, these findings raise the possibility, in this population, that advances a better understanding of the impact mechanism of mindfulness on happiness.

Keywords Mindfulness · Happiness · Self-compassion · Student-athlete · Sport

Introduction

Many philosophical and religious traditions teach that happiness can be found by living in the present, and practitioners are trained to be here and now against the wandering mind. Although not thinking about the present experience is a cognitive skill, we may be paying an emotional price for it. The human mind wanders, and a wandering mind is an unhappy mind (Killingsworth & Gilbert, 2010). Like

✉ Serdar Solmaz
serdarsolmaz11@gmail.com

Extended author information available on the last page of the article

sedentary individuals, happiness is an important structure for athletes as well. It was found that compared to external factors, internal factors such as mindfulness, self-esteem, locus of control and self-restraint have a stronger relationship with the happiness of athletes (Denny & Steiner, 2009). Mindfulness, which refers to a conscious, non-judgmental awareness of the present experience (Kabat-Zinn, 2003) is among the structures that have caught the attention of researchers in the field of sport psychology (Tingaz et al., 2020; Tingaz, 2020a). The number of studies showing the positive relationship between mindfulness both self-compassion (Tingaz, 2020b) and well-being (Bajaj et al., 2016; Bränström et al., 2011; Hanley et al., 2015) and evidence showing that mindfulness-based intervention programs increase well-being (Carmody & Baer, 2008; Nyklíček & Kuijpers, 2008; Zollars et al., 2019) have been growing. It was also shown that mindfulness was effective on both the sport well-being and global well-being of athletes (Foster & Chow, 2020).

According to Neff (2003), mindfulness is a main component of self-compassion. Self-kindness and a common humanity are regarded as two other important components of self-compassion. Self-compassion involves being open to and in touch with one's pain instead of avoiding or detaching from it and producing a desire to alleviate pain and heal oneself through kindness. Self-compassion involves offering a non-judgmental understanding of one's pain, inadequacies, and failures. Therefore, the individual sees their experience as part of the larger human experience. Neff and Dahm (2015) stated that self-compassion was a stronger predictor of well-being than mindfulness. In support of this, Hollis-Walker and Colosimo (2011) reported that self-compassion played a mediating role in the relationship between mindfulness and happiness. In another study, it was found that self-compassion played a mediating role in the impact of mindfulness-based stress reduction intervention on well-being (Evans et al., 2018). In addition to these, it was also reported that both mindfulness and self-compassion were related to well-being (Baer et al., 2012). In light of these findings, it is thought that self-compassion will play a mediating role in the relationship between mindfulness and happiness in athletes. For this reason, in the present study, the mediating and moderator role of self-compassion in the relationship between mindfulness and happiness in student-athletes will be examined.

Method

Ethics Approval

The study design complies with the Declaration of Helsinki (World Medical Association, 2013) ethical standards. The ethics committee approval for the present study was obtained from the Scientific Research and Publication Ethics Committee of

the Faculty of Social Sciences and Humanities at Hatay Mustafa Kemal University (Approval no: 21817443-050.99).

Participants

In order to detect an effect size of Cohen's $d=0.05$ with 90% power ($\alpha=0.01$, two-tailed), G*Power suggests 354 participants would be needed in a linear multiple regression test. Due to the probability of withdrawal from the study or missing data, the sample size was increased by approximately 10% (Suresh & Chandrashekar, 2012). In this direction, 392 student-athletes from two state universities in Turkey (Hatay Mustafa Kemal University School of Physical Education and Sport, Istanbul University Cerrahpaşa Faculty of Sports Sciences) were included in the present study. It was determined that 29 individuals had no athletic experience, no branch, who used psychiatric medicine and provided invalid answers to the control question (The next year is 2021), and these individuals were excluded from the study. In conclusion, 363 individual and team-sport athletes (63.9% male; 35.8% female; 0.3% non-binary, $M_{age}=21.51$, $SD=3.33$; *mean athletic experience* = 5.92 years, $SD=4.63$) constitute the study group of the present study.

Measures

Demographics

Contains information regarding the gender, age, and athletic experience of the participants. None of the participants in the present study were using any psychiatric medication.

Oxford Happiness Questionnaire-Short Form

The Oxford Happiness Questionnaire-Short Form was originally developed by Hills and Argyle (2002) and adapted to Turkish by Doğan and Çötök (2011). The questionnaire consists of eight items (e.g., "I do not have happy memories about the past") and it has a Cronbach's Alpha internal consistency coefficient of 0.74. The test-retest correlation of the questionnaire, which was applied two weeks apart, was calculated as 0.85. It is a measurement tool scored on a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). While there is a negative and significant relationship between the Oxford Happiness Questionnaire and depression ($r=0.48$, $p<0.001$), it was observed that the questionnaire had a positive and significant relationship with life satisfaction ($r=0.61$, $p<0.001$) and life orientation ($r=0.51$, $p<0.001$). It was observed that the Cronbach's Alpha internal consistency coefficient in the present study was $\alpha=0.74$.

Self-Compassion Scale (SCS)

The Self Compassion Scale developed by Neff (2003) was adapted to Turkish by Deniz et al. (2008) on university students. The scale consists of 24 items and a single dimension (e.g., “when I’m feeling down, I tend to obsess and fixate on everything that’s wrong”). The 5-point Likert scale (1 = *Almost Never*, 5 = *Almost Always*) has a Cronbach’s alpha value of 0.89 and a test–retest value of 0.83. It was determined that self-compassion had a significant relationship with self-respect at a level of 0.62, with positive emotion at a level of 0.41, with negative emotion at a level of .48, and with life satisfaction at a level of 0.45. It was observed that the scale was applied on athletes as well and had a reliability value ranging between 0.87 and 0.93 (Mosewich et al., 2011; Reis et al., 2015). It was observed that the Cronbach’s Alpha internal consistency coefficient in the present study was $\alpha = 0.74$.

Mindfulness Inventory for Sport (MIS)

The Mindfulness Inventory for Sport, which was developed by Thienot et al. (2014) and adapted to Turkish by Tingaz (2020c), consists of 15 items. Awareness (e.g., “I am aware of the thoughts that are passing through my mind”), Non-Judgment (e.g., “when I become aware that I am thinking about a past performance, I criticize myself for not being focused on my current performance”) and Refocusing (e.g., “when I become aware that some of my muscles are sore, I quickly refocus on what I have to do”) are the sub-dimensions of the scale. The items in the inventory are rated on a 6-point Likert scale (1 = *almost never*, 6 = *almost always*). The Cronbach’s Alpha value for the overall inventory is 0.82 while the values for the sub-dimensions are as follows: Awareness: $\alpha = 0.81$, Non-judgment: $\alpha = 0.70$ and Refocusing: $\alpha = 0.77$. The test–retest correlation of the inventory, which was applied two weeks apart, was calculated as 0.89 while the correlation values of the sub-dimensions are as follows; Awareness: $r = 0.72$, Non-judgment: $r = 0.77$, and Refocusing: $r = 0.96$. It was observed that the Cronbach’s Alpha internal consistency coefficient in the present study was $\alpha = 0.85$.

Data Analyses

All data were collected through Google Forms. SPSS 25 (Statistical Package for Social Sciences Version 25) was used to examine the relationship between descriptive statistics and variables. PROCESS Macro for SPSS was used for Structural Equation Modeling (SEM). Before starting the analyses, it was determined that all of the data collected from the scales were normally distributed as they were within the skewness and kurtosis limit values (George & Mallery,

Table 1 Correlations between mindfulness, self-compassion, and happiness

Variable	Mean	SD	1	2	3
1. Mindfulness	4.66	0.63	–		
2. Self-compassion	3.69	0.69	0.210**	–	
3. Happiness	3.51	0.63	0.135*	0.475*	–

** $p < .01$, * $p < .05$

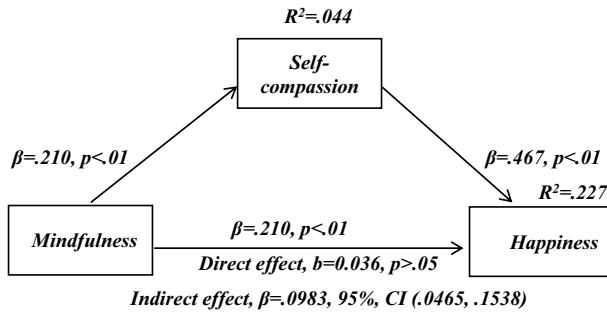


Fig. 1 The mediating role of self-compassion in the relationship between mindfulness and happiness

2010; Kline, 2016; Tabachnick & Fidell, 2013). Additionally, standardized values of data from three different scales were taken and the analyses were performed using the standardized values.

Results

Table 1 shows that there is a positive and significant relationship between mindfulness, self-compassion ($r = 0.210, p < 0.01$), and happiness ($r = 0.135, p < 0.05$). It was also observed that there was a moderate, positive, and significant relationship between happiness and self-compassion ($r = 0.475, p < 0.01$). The correlation intervals were evaluated based on Schober et al. (2018) (0.00–0.10: insignificant, 0.10–0.39: weak, 0.40–0.69: moderate, 0.70–0.89: strong, 0.90–1: very strong).

The Mediating Role of Self-Compassion in the Relationship Between Mindfulness and Happiness

First, a regression analysis was performed to reveal the effect of mindfulness (the predictor variable) on self-compassion (the mediating variable). According to the results of this analysis, it is observed that mindfulness has a positive and significant effect on self-compassion ($\beta = 0.2103, 95\% \text{ CI } [0.1092, 0.3115], t = 4.088, p < 0.001$). Mindfulness explains approximately 4.4% ($R^2 = 0.04$) of the change in self-compassion (Fig. 1). In a model without the mediating variable self-compassion, it is observed that the predictor variable mindfulness has a positive and

significant effect on the dependent variable happiness ($\beta=0.1349$, 95% CI [0.0323, 0.2374], $t=2.585$, $p<0.01$). Mindfulness explains approximately 1.8% ($R^2=0.018$) of the change in happiness (Fig. 1). When the effects of the mediating variable self-compassion and the predictor variable mindfulness on happiness are analyzed in conjunction, it is observed that the mediating variable self-compassion has a positive and significant effect on the dependent variable happiness ($\beta=.4674$, 95% CI [0.3742, 0.5606], $t=9.861$, $p<0.001$). It was observed that mindfulness did not have a significant effect on happiness ($\beta=0.0365$, 95% CI [-0.0567, 0.1297], $t=0.7707$, $p=0.441$). Mindfulness and self-compassion explain approximately 23% ($R^2=0.227$) of the change in happiness (Fig. 1). The significance of the indirect effect of mindfulness on happiness was determined based on the confidence intervals obtained using the Bootstrap technique. The 5000 resampling option was preferred in the Bootstrap analysis. In the mediating and moderator effect analyses performed with the Bootstrap technique, the values within the 95% confidence interval (CI) obtained as a result of the analysis must not include the value zero (0) for study hypotheses to be supported (MacKinnon et al., 2004). The confidence intervals produced as a result of the bootstrap analyses performed do not include the value 0 (zero) ($\beta=0.098$, 95% CI [0.0465, 0.1538]). The full standardized effect size of the mediating effect is $K^2=0.098$, and this value demonstrates an effect size close to moderate (Preacher & Kelley, 2011).

According to Baron and Kenny (1986), the independent variable's effect on the dependent variable becoming insignificant indicates a full mediating effect while the diminishing of this effect with the mediating variable indicates a partial mediating role. In this direction, it was determined that self-compassion played a fully mediating role in the relationship between mindfulness and happiness. It can be said that of two athletes, the happiness value of the one with higher mindfulness is 0.098 units higher than the other. The athlete with higher mindfulness will have higher self-compassion while the athlete with higher self-compassion will have a higher level of happiness.

The Moderator Role of Self-Compassion in the Relationship Between Mindfulness and Happiness

In the regression analysis performed, it was observed that all predictor variables included in the analysis explained approximately 22% ($R^2=0.227$) of the change in the dependent variable happiness. However, when the significance level of the β coefficient of the interaction effect variable that was examined to understand whether self-compassion had a moderator effect as a result of the analysis, it was determined that self-compassion did not play a moderator role in the relationship between mindfulness and happiness ($\beta=0.0073$, 95% CI [-0.0775, 0.0921], $t=0.1685$, $p=0.866$).

Figure 2 shows mindfulness on axis X and happiness on axis Y. The effects of the lower and upper values of the moderator variable self-compassion on happiness and mindfulness are displayed in different colors. The line is straight in both cases where the moderator variable is low ($\beta=0.04$, $p=0.613$) and high ($\beta=0.04$, $p=0.601$). In

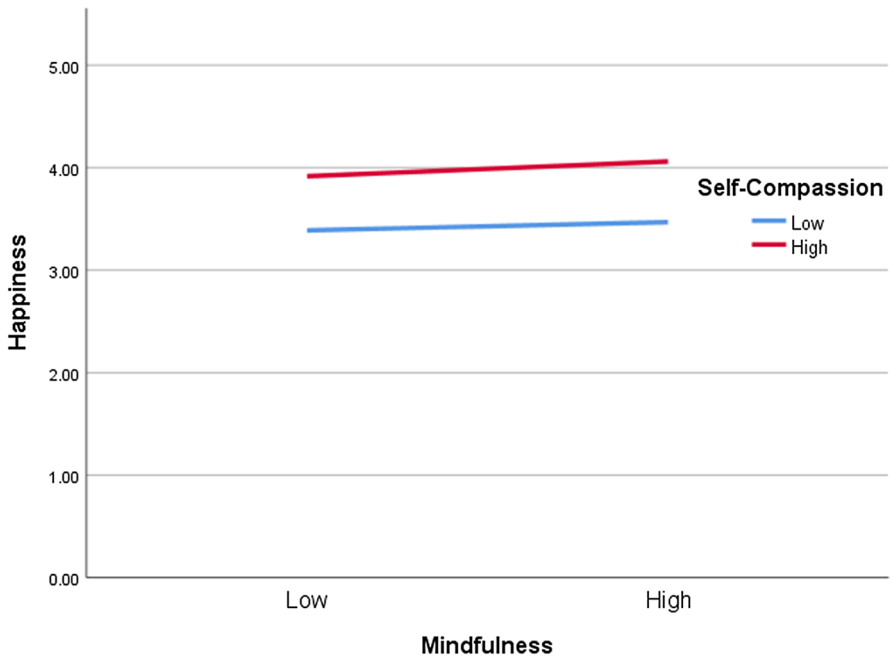


Fig. 2 Graphical display of the moderator effect of self-compassion

conclusion, it was determined that the effect of mindfulness on happiness was not significant in both cases where self-compassion is low and high.

Discussion

In the present study, the mediator and moderator role of self-compassion in the relationship between mindfulness and happiness in student-athletes was examined.

A significant positive correlation was found between mindfulness, self-compassion, and happiness. In addition, it was concluded that self-compassion played a fully mediating role in the relationship between mindfulness and happiness. On the other hand, it was also found that self-compassion did not have a moderator role in the relationship between mindfulness and happiness. This result is in parallel with the related literature. In the study conducted with non-meditators by Hollis-Walker and Colosimo (2011), it was found that self-compassion played a mediating role in the relationship between happiness and mindfulness. Similarly, following an 8-week mindfulness-based stress reduction program, Evans et al. (2018) reported that self-compassion played a mediating role in the relationship between mindfulness and well-being in a population-based sample. It was also reported that self-compassion was a better predictor of the severity of symptoms and quality of life in anxiety and depression compared to mindfulness (Van Dam et al., 2011). Neff and Germer

(2013) found that an eight-week mindful self-compassion intervention applied to adults improved self-compassion, mindfulness, and well-being.

At this point, the studies in the related literature examining the relationship between self-compassion and well-being stand out. For instance, in the study conducted with healthcare staff by Benzo et al. (2017), it was reported that self-compassion was independently connected to happiness and well-being. In a meta-analysis study, it was reported that self-compassion had a positive relationship with well-being (Zessin et al., 2015). Considering all these findings, it is not a surprising result that self-compassion demonstrated a full mediating effect in the relationship between mindfulness and happiness. Additionally, the finding that self-compassion does not play a moderator role in the relationship between mindfulness and happiness can be supportive in understanding the impact mechanism of mindfulness on happiness.

In conclusion, self-compassion played a fully mediating role in the relationship between mindfulness and happiness in student-athletes. On the other hand, it was observed that self-compassion did not play a moderator role in the relationship between mindfulness and happiness. While these are correlational data that do not permit causal inferences, these findings raise the possibility, in this population, that advances a better understanding of the impact mechanism of mindfulness on happiness.

Limitations

It should be noted that the present study has certain limitations. First, student-athletes were included in the study and self-report scales were used. Future studies can be carried out with different athlete groups. Second, the present study was designed as a cross-sectional study. Future studies can be designed as both longitudinal and experimental, and mediating or moderator effects can be examined.

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Availability of Data and Material Supplementary materials were added.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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Consent to Participate Participants were reached via google form and participation was achieved. In addition, participant information letter was added.

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Authors and Affiliations

Emre Ozan Tingaz^{1,2}  · **Serdar Solmaz**³  · **Meryem Altun Ekiz**⁴ · **Burcu Guvendi**⁵

Emre Ozan Tingaz
emreozantingaz@gmail.com

Meryem Altun Ekiz
mrymltn@hotmail.com

Burcu Guvendi
burcuguvendi@gmail.com

- ¹ Department of Physical Education and Sports Teaching, Faculty of Sport Sciences, Gazi University, Ankara, Turkey
- ² Department of Psychology, Çağ University, Mersin, Turkey
- ³ Department of Sport Management, Faculty of Sport Sciences, Gazi University, Ankara, Turkey
- ⁴ Department of Physical Education and Sports Teaching, School of Physical Education and Sports, Hatay Mustafa Kemal University, Hatay, Turkey
- ⁵ Department of Trainer Education, Faculty of Sport Sciences, Yalova University, Yalova, Turkey