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# The Effect of Mindfulness on Moral Decision-Making Attitudes in Athletes: Moderated Mediation Control of Moral Metacognition and Emotional Intelligence*

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**A B S T R A C T**

This study has been conducted to determine the effect of conscious awareness of sports high school students on moral decision-making attitudes and the mechanism that underlies this effect. 899 sports high school students (284 female and 615 male) participated in this research conducted in the relational screening model. When examining the data, SPSS and AMOS programs have been used. In the analysis of the data, confirmatory factor analysis was first performed to test the measurement model. And in the examination of the hypotheses of the study, regression analysis based on correlation test and Bootstrap method were used. In the study, significant positive relationships are identified between mindfulness and moral decision-making attitude, moral metacognition, and emotional intelligence. According to the results of regression analysis based on the Bootstrap method, the indirect effect of mindfulness on moral decision-making attitude through moral metacognition (Hypothesis I) has been found to be significant. The regulatory role of emotional intelligence (Hypothesis II) in the effect of mindfulness on moral metacognition has been observed to be significant. In situations where emotional intelligence is low and medium, the effect of conscious awareness on moral metacognition is significant and when high, it has been observed to be insignificant. In the indirect effect of mindfulness on moral decision-making through moral metacognition, the regulatory effect of emotional intelligence (Hypothesis III) has been found to be insignificant. It has been observed that mindfulness positively affects the attitude of moral decision-making through moral metacognition in sports high school students, and the effect of mindfulness on moral metacognition is regulated by emotional intelligence. However, it has been found that the situational mediating role of emotional intelligence is not effective in the effect of mindfulness on moral decision-making attitudes through moral metacognition.

***Keywords:*** Mindfulness, moral decision-making, moral metacognition, emotional intelligene, moderated mediation

## INTRODUCTION

*Mindfulness and Moral Decision-Making Attitude:* Mindfulness, which is often used as mindfulness in conceptual terms, has taken its source from meditation practices in Eastern culture in line with religious teachings based on Buddhist philosophy (Sun, 2014), and has started to be used frequently in Western culture, especially in recent years, by

*This study was produced from Emrah Seçer's PhD thesis and presented as a paper at the 7th academic sports research congress.

using it to regulate dysfunctional emotional states (Cairncross, 2019). It adopts the principle of focusing on the emotions and experiences experienced in the "moment" by minimizing the effects of situations that have happened or are likely to occur (Bishop et al., 2004). It has been emphasized that mindfulness (Kabat-Zinn, 2023; Ortet et al., 2020), which includes taking attention under control, adopting an accepting, open and unprejudiced attitude, has an important place in the structures which play a role in the control and coordination of these variables.

Morality is considered a guiding element in the direction of ethical values in individuals' daily lives and reasoning processes and plays an effective role in emotions (Kohlberg, 1964). With the acceleration of life of the individual and extra practices should be done to develop over time. Care should be taken to develop skills (Kızılkaya & Yılmaz, 2024). Mindfulness, which has many definitions in the literature, is defined as making sense of emotions (Göncü & Balcı, 2023), being aware of the moment and stimuli (Baltzell & Summers, 2017), being kind when communicating with other individuals, not judging, and being aware of the moment with a human acceptance by establishing harmony (Germer et al., 2013), and being aware of the events that occur in the individual's mental structure and social life (Özyeşil et al., 2011). While the positive results of mindfulness practices are emphasized in studies conducted on different groups (Creswell, 2017), it is pointed out that it increases psychological well-being by reducing negative emotional states in a study on athletes (Myall et al., 2023). In addition, research results are showing that scenario-based mindfulness practices increase motivation before, during and after a match in competitive athletes (Coimbra et al., 2021; Gao & Zhang, 2023). It is important to incorporate mindfulness practices into the sports environment by increasing the awareness of athletes to increase sporting performance (Anderson et al., 2021). In this way, it is stated that individuals will benefit from moving away from negative behaviors and negative habits (Çelik & Akgün, 2024) and taking the right steps in decision-making (Yavuz et al., 2019). Effective decision-making is seen as one of the important cognitive skills and is important for sportive success (Çetin & Kara, 2024). Mindfulness and ethical or moral decision-making attitudes in athletes are increasingly found in the literature as important psychological elements that shape the ethical behavior of athletes and improve their performance. The interaction of these two concepts can increase both individual and team level success by enabling athletes to make more conscious, ethical and strategic decisions (Gardner & Moore, 2017).

Morality (Akbuğa, 2018), which is considered as a concrete phenomenon that affects society and the elements it contains and shapes personality traits such as temperament and character, is defined as "The behaviors and rules that individuals in a society are obliged to follow." (TDK, 2024). Decision, on the other hand, is explained as "An evaluation system that affects actions, a judgment made by reasoning about a problem that needs to be concluded." (TDK, 2024). Decision-making, which is considered an emotional process as well as a cognitive one (Tuncer et al., 2022), is based on choosing the logical and rational one among alternatives (Robbins et al., 2013). Moral decision-making attitude is considered a reflection of the individual's reasoning skills in different situations that develop with age (Chiasson et al., 2017). Through mindfulness and attention, it is thought that positive changes can be achieved in the moral decision-making process (Zheng et al., 2023) and compromising moral values can be prevented (Ming et al., 2024). It is also noteworthy that structured mindfulness trainings significantly reduce negative situations in the moral decision-making process (Arahuete & Pinazo, 2024), and increases moral reasoning (Pandey et al., 2018) and decision-making skills (Du et al., 2023). Despite these facts, they state that it is not enough to reveal the effect of contemporary mindfulness-based practices on moral structure (Berryman, 2024; Berryman et al., 2023).

*The Mediating Role of Moral Metacognition:* Throughout history, human beings have needed cognitive elements to develop these features in addition to their thinking and learning abilities to continue their lives. Metacognition, which has difficulty in defining its characteristics in different disciplines due to its abstract scope, is stated to apply techniques to obtain inferences about the actions of the individual (Moritz & Lysaker, 2018). The concept, which was first established as "metamemory" in the literature (Flavell, 1976), was evaluated as "metacognition" in the process (Flavell, 1979). Metacognition is defined as the ability to assess subjectively and process cognitive practices and learning styles (Jager et al., 2005), awareness (Kuhn & Dean, 2004), observation and control of ideas (Martinez, 2006). It is thought to be related to cognitive variables and to contain detailed data of cognitive technological developments, many new situations that need solutions have emerged, and it has become inevitable for individuals to face various conflicts in this context and to take an active role in decision-making processes. The intense experience of emotions in sports environments causes individuals to face moral dilemmas more frequently in decision-making processes. In such dilemma situations, the decision-making process requires

cognitive evaluation and analysis (McMahon & Good, 2015). In this process, the ability to make decisions by social norms is of great importance. Therefore, the need for individuals to gain and develop moral awareness skills comes to the fore (Ömürlü, 2018).

*The Regulatory Role of Emotional Intelligence:* "Emotional intelligence", the foundations of which were laid by Thorndike (1920) with social intelligence, started to be the subject of many researches in the process and gained an international dimension with the book "Emotional Intelligence" written by Goleman (1995). It is defined as understanding the mental structures of others (Jordan, 2016), orienting towards the goal through self-control (Özbek & Boztepe, 2017), using general competencies (Bar-on, 2005), and helping social peace (Hasson, 2019). Emotional intelligence, which has gained a place in different areas of human life, has started to gain a place in sports environments and athlete behavior/performance. Although it is assumed that sports are done for pleasure and entertainment (Sit & Lindler, 2005), it is emphasized that emotional states have effects on performance (Mellalieu et al., 2009). In these cases, it is thought that individuals can guide the decision-making processes that they will face at critical points.

*Current Research:* It is stated that sport has an important impact on the character and moral development of individuals, which is based on its relationship with social morality and behavior (Gürpınar, 2014). It is stated that moral development plays an important role in the cognitive processes of individuals and contributes to the analysis and evaluation of contradictory situations encountered, especially in distinguishing between good and evil (Kohlberg, 1964). Physical education programs are used as an effective tool in the moral development of students at basic education levels (primary, secondary, high school) (NASPE, 2004). In this context, the role of physical education and sports in the development of moral values such as honesty, virtue and tolerance is of great importance (Shields & Bredemeier, 1995). Many values, behaviors and attitudes that are necessary for individuals to sustain their lives in society and gain social acceptance can be gained through sports. For this reason, sport is seen as an important phenomenon for the individual and society in terms of investigating the moral decision-making process and the reasons underlying this process. Sport has a dynamic structure that includes various situations such as winning and losing. It is very difficult to make and implement morally correct decisions in these processes. However, it is thought that individuals who can make morally correct decisions in instant situations can maintain these attitudes in their daily lives. Considering the impact of the moral decision-making process on the individual and society, studies in this field are of great importance.

This study aims to examine the relationship between mindfulness levels and moral decision-making attitudes of students studying in sports high schools and actively participating in sports activities, to evaluate the mediating role of moral metacognition and the moderating effect of emotional intelligence in this relationship. The hypotheses of the research in this context were determined as follows;

H1: Mindfulness has an indirect effect on moral decision-making attitude through moral metacognition (mediating effect-indirect effect).

H2: Emotional intelligence has a moderating role in the effect of mindfulness on moral metacognition (moderation).

H3: Emotional intelligence has a moderating role in the indirect effect of mindfulness on moral decision-making attitude through moral metacognition (moderated mediation).

## METHODOLOGY

### Research Model

In the study conducted to determine the effect of mindfulness level on moral decision-making attitudes in sports high school students and the mediating role of moral metacognition and the regulatory role of emotional intelligence in this effect, the relational screening model was used. Relational survey models, which are considered within the scope of quantitative research methods, are frequently used to determine the relationships between two or more variables and their increases and decreases (Christensen, Johnson & Turner, 2015). Considering that the identification of simple relationships in social field research may be insufficient to fully understand social reality, it is stated that how the relationship is realized (mediator) and in which situations it changes (moderator) is important. In addition, it is stated that such research is valuable in terms of improving existing knowledge and gaining a unique perspective on the relationship mechanism (Gürbüz, 2021). This study was supported by Atatürk University Scientific Research Projects Coordination Unit (Project Code: SDK-2023-12391). The theoretical model to be tested in the research is presented in Figure 1.

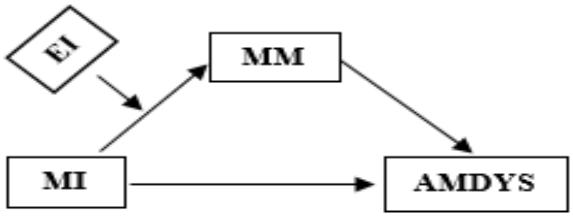


**Figure 1.** Proposed Moderated Mediation Model

## Research Group

The research group was determined by the criterion sampling method, which is one of the purposive sampling methods within the scope of random sampling methods in which participants are determined by forming from people, facts, events, etc. with certain characteristics (Büyüköztürk et al., 2023). As criteria, (a) studying in sports high schools, (b) actively practicing licensed sports, (c) being located in a close and accessible location to collect data more healthily were determined. Based on these criteria, 899 students (224 female and 615 male) studying in Sports High Schools in Erzincan, Erzurum, Trabzon, Tokat, Giresun, Gümüşhane and Van provinces participated in the study voluntarily. Demographic information of the research group is shown in Table 1.

**Table 1.** Demographic Characteristics of the Research Group

| Variable | Group | n | % |
|---|---|---|---|
| **Gender** | Female | 284 | 31.6 |
| | Male | 615 | 68.4 |
| **Branch** | Football | 315 | 35.0 |
| | Volleyball | 136 | 15.1 |
| | Basketball | 50 | 5.6 |
| | Handball | 69 | 7.7 |
| | Wrestling | 76 | 8.5 |
| | Athletics | 112 | 12.5 |
| | Boxing-Muaytai | 26 | 2.9 |
| | Swimming | 11 | 1.2 |
| | Badminton | 24 | 2.7 |
| | Tennis - Table Tennis | 11 | 1.2 |
| | Judo | 11 | 1.2 |
| | Gymnastics | 3 | 0.3 |
| | Arm Wrestling | 15 | 1.7 |
| | Weightlifting | 6 | 0.7 |
| | Taekwondo | 13 | 1.4 |
| | Shooting | 3 | 0.3 |
| | Winter Sports | 18 | 2.0 |
| **Income Status** | Low | 75 | 8.3 |
| | Middle | 600 | 66.7 |
| | High | 224 | 24.9 |
| | Group | Min-Max | Mean ± SD |
| **Age** | Female | 13-18 | 15.70±1.227 |
| | Male | 13-18 | 15.85±1.191 |
| | General | 13-18 | 15.80±1.204 |
| **Sport Age** | Female | 1-14 | 5.69±3.398 |
| | Male | 1-15 | 6.02±3.003 |
| | General | 1-15 | 5.92±3.135 |

## Data Collection Tools

Mindfulness Inventory for Sport (MIS) Scale: It is a 6-point Likert-type scale developed by Thienot et al. (2014) and adapted into Turkish by Tingaz (2020). As a result of the confirmatory and explanatory factor analysis of the scale, it is stated that the scale consists of 15 items and three sub-dimensions (Awareness, Nonjudgment, Refocusing) and all items in the "Nonjudgment" dimension of the scale are reverse coded. As a result of the confirmatory factor analysis (CFA) conducted during the adaptation phase, it was determined that the goodness of fit values ($\chi 2$ =158.77 (sd=86, p<.01), $\chi 2$/sd=1.84, RMSEA=0.08, GFI=0.86, CFI=0.95, IFI=0.95) were sufficient. Cronbach's alpha coefficient of the scale was calculated as α=.82. For the sub-dimensions, it was calculated as α=.81, α=.70, α=.77 respectively.

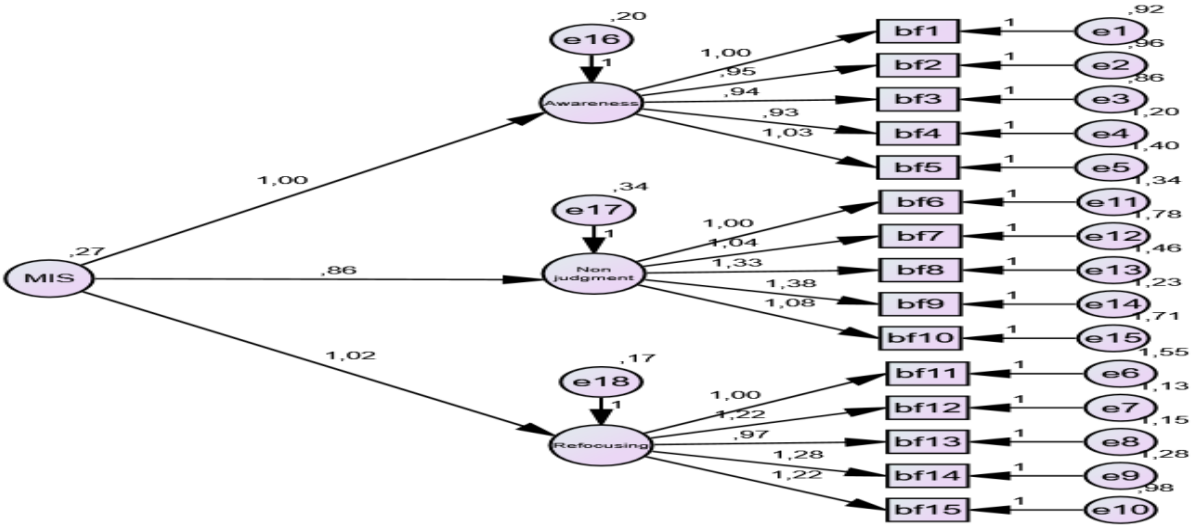


**Figure 2.** CFA Results of the Mindfulness Inventory for Sport Scale

*Attitudes to Moral Decision-making in Youth Sport Scale (AMDYSS):* The scale adapted into Turkish by Gürpınar (2014) was developed by Lee et al. (2007). As a result of confirmatory and explanatory factor analysis, it is seen that the 5-point Likert-type scale consists of 9 items and three sub-dimensions (Acceptance of Cheating, Acceptance of Gamesmanship, Keep Winning in Proportion). Items 1, 2, 4, 5, 6, 8 are reverse-coded. As a result of confirmatory factor analysis during the development phase of the scale, goodness of fit values (Chi-square/sd=2.85; GFI= 0.96; AGFI= 0.93; CFI= 0.96; NNFI= 0.94; RMSEA= 0.068; SRMR= 0.047) were found. Cronbach's alpha coefficient for the whole scale was α=.76, while the sub-dimensions were α=.77, α=.67, α=.59, respectively.

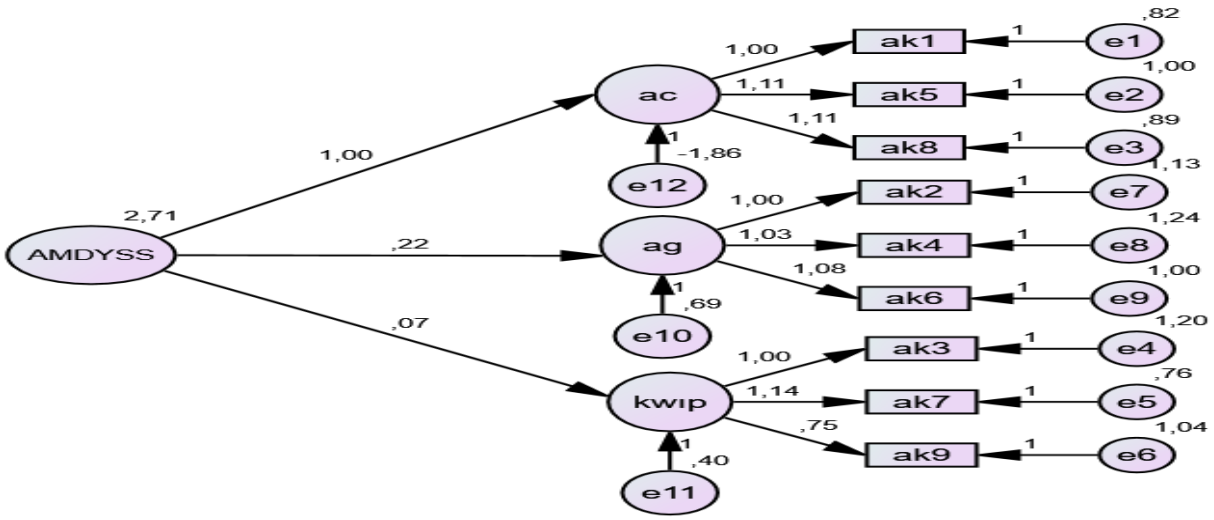


**Figure 3:** CFA Results of the Attitudes to Moral Decision-Making in Youth Sport Scale

*Moral Metacognition Scale:* The scale was developed by McMahon and Good (2016) and adapted into Turkish by Çelik and Sarıçam (2018). The scale, which is evaluated on a 6-point Likert scale, consists of 20 items and 4 sub-dimensions (regulation of cognition, declarative cognition, procedural cognition, conditional cognition). Cronbach's alpha coefficients of the scale were α=.89 for the whole scale and α=.60, α=.78, α=.64, α=.67 for the dimensions, respectively.

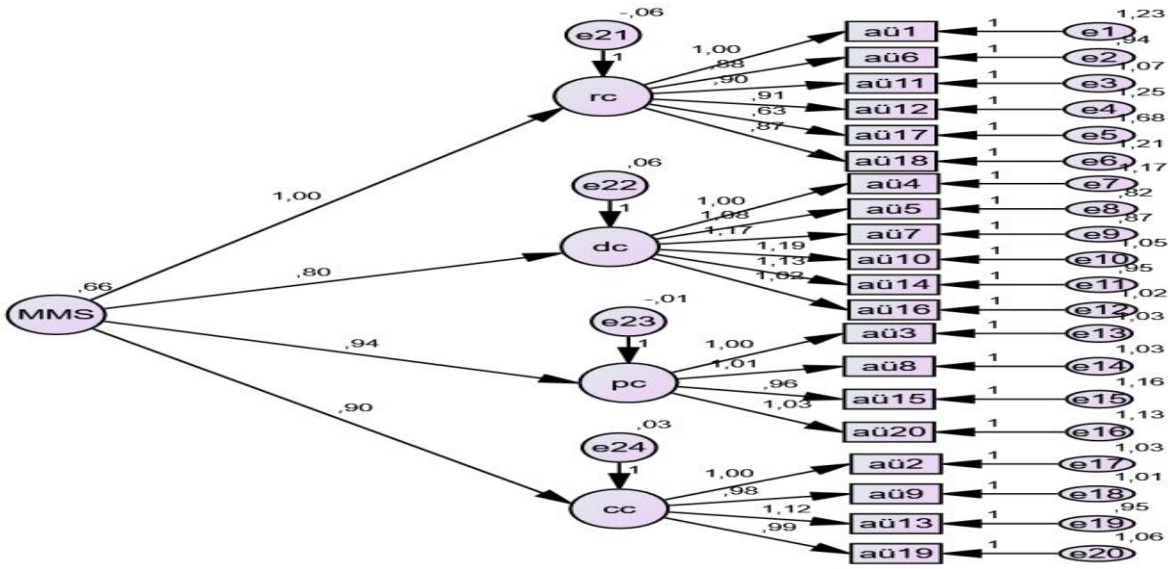


**Figure 4.** CFA Results of Moral Metacognition Scale

*Emotional Intelligence Scale:* The scale used by Aslan and Özata (2008) was first revised as 33 items by Schutte et al. (1998) and then as 12 items by Chan (2004). The 5-point Likert scale was found to have high reliability (Cronbach Alpha=0.82-0.86) in Chan's study. In the sub-dimensions of the scale, emotional appraisal: α=.87, empathic sensitivity: α=.83, positive emotional management: α=.88, positive utilization of emotional: α=.85.

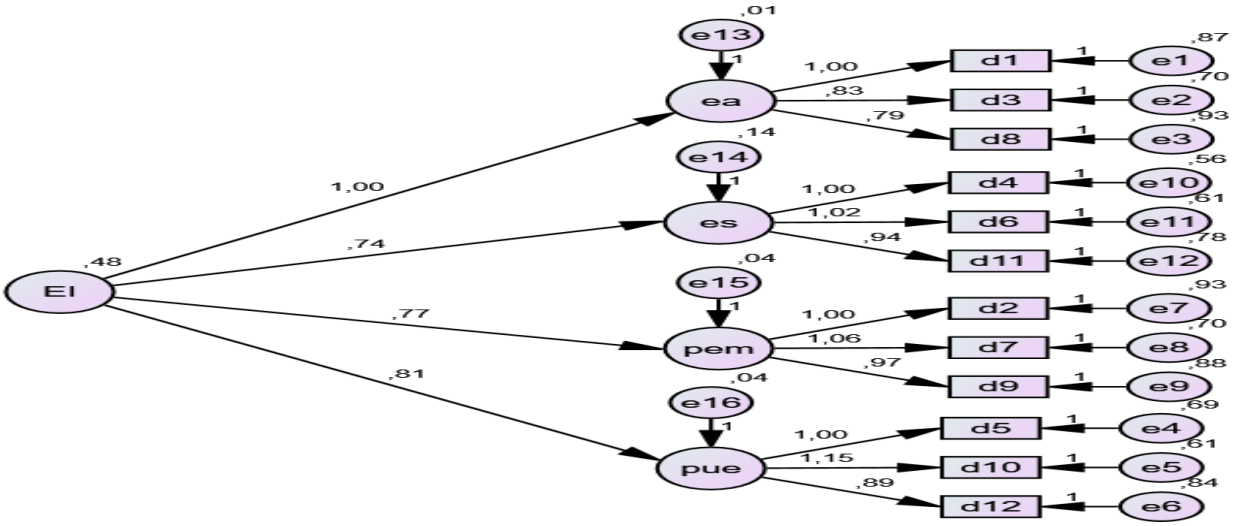


**Figure 5.** CFA Results of Emotional Intelligence Scale

Within the scope of this study, Level 2 confirmatory factor analyses were conducted to test the construct validity of all scales. Since the data met the normality criteria, Maximum Likelihood calculation method was utilized. As a result of CFA, goodness of fit values accepted in the literature were obtained. The goodness of fit values of the scales used in the study and the values referenced in the literature are given in Table 2.

**Table 2.** Goodness of Fit Indices and Threshold Values Used in SEM

| Index | Good Fit | Acceptable | MIS | AMDYSS | MMS | EIS |
|---|---|---|---|---|---|---|
| X2/df | <3 | <3(X2/df)<5 | 2.901 | 3.237 | 3.428 | 4.081 |
| GFI | >.95 | >.90 | 0.963 | 0.981 | 0.938 | 0.963 |
| CFI | >.95 | >.90 | 0.930 | 0.968 | 0.927 | 0.932 |
| RMSEA | <.05 | <.08 | 0.046 | 0.050 | 0.052 | 0.059 |
| SRMR | <.05 | <.08 | 0.043 | 0.038 | 0.038 | 0.040 |

Reference values are taken from Byrne, 2016 & Gürbüz, 2021.

*Ethical Approval and Procedure:* The data of the study were collected after the decision of Erzincan Binali Yıldırım University Human Research Health and Sports Ethics Committee (protocol no: 20.02.2023-02/11) and the research application permission of the Ministry of National Education General Directorate of Vocational and Technical Education (dated 28.03.2023 and numbered E-62045208-605.01-73247518) after the informed consent of the participants was obtained. Participants were informed that they could withdraw from the study at any time. All procedures performed in this study were by the 1964 Declaration of Helsinki and ethical standards.

The study aimed to examine the effect of Sports High School students' Mindfulness (MI) on their moral decision-making attitudes (AMDYS) and the mechanisms underlying this effect. First, the mediating role of moral metacognition (MM) in the relationship between MI and AMDYS was tested (Model 4). Second, the moderating effect of emotional intelligence (EI) on moral metacognition of mindfulness was examined (Model 1). Finally, the moderated mediating role of emotional intelligence in the indirect effect of mindfulness on moral decision-making attitudes through moral metacognition was tested (Model 7).

## Data Analysis

Before analyzing the data, outliers and missing values were examined using IBM SPSS 25 software (IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY, USA). Then, the data were examined for conformity to a normal distribution and the relationships between the independent, dependent, mediator and moderator variables in the study were tested with Pearson correlation analysis. The suitability of the data in terms of normal distribution was examined by the Mahalanobis distances, Z values, skewness and kurtosis values of the calculated scale scores. It is stated that if the skewness and kurtosis values are between +1 and -1, the data are normally distributed (Hair et al., 2014). In addition, it was determined that the Z values were also within the appropriate ranges (-3/+3). In addition, linear relationships between the variables were checked with a scatter diagram and it was seen that there was no deviation in the distribution. The correlation values between the variables were also examined and it was determined that there was no multicollinearity problem since no value above .80 was encountered (Büyüköztürk, 2023). In addition, the tolerance and VIF values obtained from the data gave results confirming that there was no multicollinearity between independent variables (Tolerance > 0.2, VIF < 10).

AMOS 24 program was used to test the factor structure of the measurement tools used in the study. After confirming the factor structure of the measurement instruments, regression analysis based on the Bootstrap method was applied to test the hypotheses of the study (Hayes, 2022). The hypotheses were tested using Process Macro version 4.2. developed by Hayes (2022). Model 4 to test the first hypothesis of the study "Mindfulness has an indirect effect on moral decision-making attitude through moral metacognition.", model 1 to test the second hypothesis "Emotional intelligence has a moderating role in the effect of mindfulness on moral metacognition." Model 1 was used to test the first hypothesis and model 7 was used to test the third hypothesis "Emotional intelligence has a moderating role in the indirect effect of mindfulness on moral decision-making attitude through moral metacognition". In the analyses, the Bootstrap technique and the 5000 sample option were preferred. In mediation and moderating effect analyses conducted with the Bootstrap technique, the 95% confidence interval (CI) values obtained as a result of the analysis should not contain 0 (zero) to support the research hypothesis (Hayes, 2022; Preacher & Hayes, 2008).

# RESULTS

In this section, the data obtained from the scales to determine the relationship between mindfulness and moral decision-making of students studying in sports high school and actively engaged in sports, and the mediating role of moral metacognition and the moderating role of emotional intelligence in this relationship are analyzed and reported.

In the study, the relationships, descriptive analyses and reliability values between the MI, AMDYS, MM and EI levels of sports high school students are presented in Table 3.

**Table 3.** Correlation Between Variables and Descriptive Analyses

| Variables | MI | AMDYS | MM | EI | X | Ss | Skewness | Kurtosis | Cronbach |
|---|---|---|---|---|---|---|---|---|---|
| **MI** | 1 | | | | 61.34 | 6.89 | .075 | .501 | .794 |
| **AMDYS** | .069** | 1 | | | 33.29 | 6.74 | -.355 | -.380 | .732 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **MM** | .279** | .137** | 1 | 90.55 | 15.30 | -.496 | .273 | .906 |
| **EI** | .361** | .189** | .592** | 1 | 48.48 | 7.44 | -.613 | .100 | .825 |

***p<.05, **p<.01 (Abbreviations: MI: Mindfulness; AMDYS: Moral Decision-Making Attitude; MM: Moral metacognition; EI: Emotional Intelligence)***

When the table is examined, it is determined that there are statistically significant relationships between all of the variables of MI, AMDYS, MM and EI of sports high school students. There is a medium level relationship between MI and AMDYS (r=.069, p<.01), a low level relationship between MI and MM (r=.279, p<.01), a medium level relationship between MI and EI (r=.361, p<.01), a low level relationship between AMDYS and MM (r=.137, p<.01) at a low level, between AMDYS and EI (r=.189, p<.01) at a low level and between MM and EI (r=.592, p<.01) at a medium level.

**Table 4.** Bootstrap Regression Analysis Results

| Variables | MM | | | EI | | | AMDYS | | |
|---|---|---|---|---|---|---|---|---|---|
| | b (a) | LLCI | ULCI | b | LLCI | ULCI | b | LLCI | ULCI |
| Model 1 (H1) | | | | | | | | | |
| MI (X) | .619*** | .480 | .759 | - | - | - | .054 | -.011 | .120 |
| MM (M) | - | - | - | - | - | - | .053*** | .024 | .083 |
| R2 | | .078 | | | | | | .021 | |
| Boostrap indirect impact | Mindfulness→ Moral Metacognition→ Moral Decision-Making Attitude b=.033, 95% CI [.014, .055] | | | | | | | | |
| Model 2 (H2) | | | | | | | | | |
| MI (X) | .160** | .035 | .285 | - | - | - | - | - | - |
| EI (W) | 1.154*** | 1.037 | 1.270 | - | - | - | - | - | - |
| X.W (Interaction) | -.015* | -.029 | -.000 | - | - | - | - | - | - |
| R2 | | .359 | | | - | | - | | |
| Model | | | | | | | | | |
| MI (X) | 0.160 | .035 | .285 | - | - | - | .054 | -0.011 | 0.120 |
| MM (M) | - | - | - | - | - | - | .053*** | .024 | .083 |
| EI (W) | 1.154*** | 1.037 | 1.270 | - | - | - | - | - | - |
| R2 | | 0.021 | | | - | | - | | |
| | Mindfulness→ Moral Metacognition→ Moral Decision-Making Attitude | | | | | | | | |
| Low EI | .014 | .003 | .030 | | | | | | |
| Middle EI | .008 | .000 | .019 | | | | | | |
| High EI | .002 | -.007 | .014 | | | | | | |
| Modareted Mediation Index | -.000 | -.001 | .000 | | | | | | |

***p<.05, **p<.01, ***p<.001**

The mediation effect was tested to test the first hypothesis of the study (Mindfulness→ Moral Metacognition→ Moral Decision-Making Attitude). Accordingly, it was determined that the indirect effect of mindfulness on moral decision-making attitude through moral metacognition was significant (b=.033, 95% CI [.014, .055]). In Table 4, it was seen that the predictor variables included in the regression model according to Model 1 explained approximately 2.1% (R2=.021) of the change in moral decision-making attitude. In line with these findings, H1 was supported.

In order to test the second hypothesis of the study, a regression model showing the moderating effect (Model 2) was established. The effects of mindfulness (path b1), emotional intelligence (path b2) and interactional term (path b3) on the outcome variable moral metacognition were found to be significant. The fact that the b value of the interactional term (Int_1/X.W) variable, which shows the moderating effect, is significant means that emotional intelligence has a moderating effect (b=-.015, 95% CI (.-.029, .-.0008], p<.05). As a result of the slope analysis, the effects of the moderating variable are shown graphically in Figure 6. When the details of the moderating effect are examined, it is seen that the effect of mindfulness on moral metacognition is significant when emotional intelligence is low (b=.273, 95% CI [.112, .433], p<.001) and moderate (b=.153, 95% CI [.027, .278], p<.01). In addition, it was determined that the relationship between mindfulness and moral decision-making attitude was not significant when emotional intelligence was high (b=.048, 95% CI [.-119, .215], p=.573). In sum, as the level of

emotional intelligence increased, the effect of mindfulness on moral metacognition decreased. In line with these findings, H2 was supported.

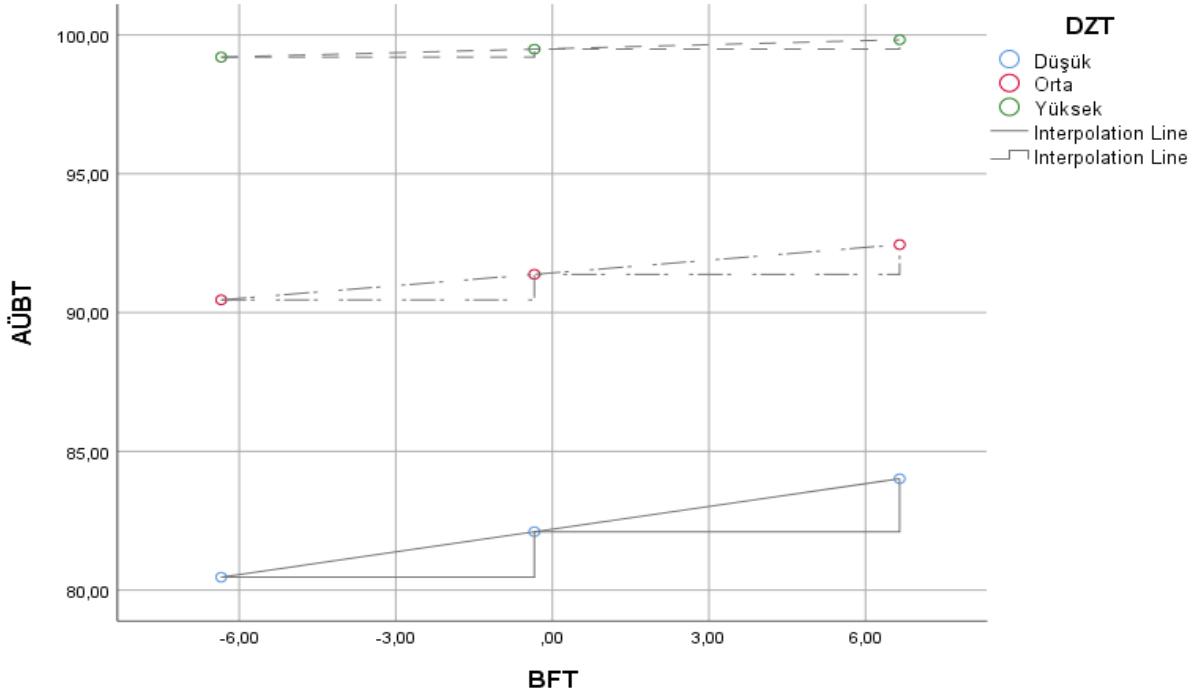


**Figure 6.** Graphical Illustration of the Regulatory Effect of Emotional Intelligence

In order to test the third hypothesis of the study, a moderated mediation regression model in which emotional intelligence is a moderated mediator was established. Firstly, the effects of low, medium and high emotional intelligence on the effect of mindfulness on moral decision-making attitude were tested. When the confidence intervals (CIs) obtained with the bootstrap technique were examined, it was found that when emotional intelligence was low (-7.4839), the effect of mindfulness on moral decision-making attitude through moral metacognition was significant (b=.014 95% CI [.003, .030]), and when emotional intelligence is moderate (.5161), the effect of mindfulness on moral decision-making attitude through moral metacognition is significant (b=.008 95% CI [.000, .019]). However, in the case of high emotional intelligence (7.5161), the effect of mindfulness on moral decision-making attitude through moral metacognition was not significant (b=.002 95% CI [.-007, .014]). Finally, it was tested whether the indirect effect of mindfulness (X) on moral decision-making attitude (Y) through the mediating variable moral metacognition (M) depends on emotional intelligence (W), that is, whether there is a moderated mediation role. The insignificant value of the index of moderated mediation (b=-.000 95% CI [.-001, .000]) indicates that emotional intelligence is not a moderating variable in the indirect effect of mindfulness on moral decision-making attitude through moral metacognition. Accordingly, H3 is not supported.

## DISCUSSION

In the study, it was determined that the effect of mindfulness on moral decision-making attitude through moral metacognition was significant, in other words, moral metacognition had a mediating role in the effect of mindfulness on moral decision-making attitude. The moderating role of emotional intelligence on the effect of mindfulness on moral metacognition was statistically significant and the effect of mindfulness on moral metacognition became insignificant as emotional intelligence increased. The moderating role of emotional intelligence in the indirect effect of mindfulness on moral decision-making attitude through moral metacognition was statistically insignificant. In this section, the findings obtained from the study are discussed comprehensively in relation to the existing literature.

**Table 5.** Hypotesis Test Results of the Study

| Hypotheses | Results |
|---|---|
| H1: Mindfulness has an indirect effect on moral decision-making attitude through moral metacognition (mediating effect-indirect effect). | Acceptance |
| H2: Emotional intelligence has a moderating effect on the effect of mindfulness on moral metacognition (moderating). | Acceptance |
| H3: Emotional intelligence has a moderating effect on the indirect effect of mindfulness on moral decision-making attitude through moral metacognition (moderated mediation). | Not Accepted |

Cognitive capacity is among the basic features that distinguish humans from other beings. Thanks to mindfulness, which is at the center of this capacity, individuals can keep their emotions and activities under control (Arslantürk & Şamyanlı, 2021). Mindfulness has an important place in learning and teaching processes, and when it is integrated into an effective education system, it allows students to both increase their academic achievement and make more progress towards self-realization. Considering the lack of mindfulness practices, it is stated that the studies on this subject aim to raise awareness and eliminate this deficiency (Ghanizadeh, Makiabadi, & Navokhi, 2019). In the reflection of awareness in the field of sports, it is stated that it will contribute to athletes achieving the performance goals they set (Thienot, 2013). In addition, it is stated that mindfulness training can be effective for athletes to perform at an optimal level (Thompson et al., 2011) and contribute to their ability to regulate their emotions (Hill & Updegraff, 2012; Gross et al., 2018; Yılmaz et al., 2024). In addition, it is also thought that mindfulness plays a role in the moral decision-making process. Cevahirlioğlu et al. (2024) stated in their study that as the level of mindfulness increases, effective decision-making skills also increase. It is pointed out that athletes with high levels of mindfulness can remain calmer in stressful situations and thus make more effective decisions. Similarly, Ruedy and Schweitzer (2010) state that individuals with high levels of mindfulness are more sensitive and sensitive about exhibiting morally inappropriate behaviors. As mindfulness embodies positive social values such as empathy and cooperation (Hafenbrack et al., 2021), it supports individuals to make positive decisions, reduces prejudices (Schindler & Friese, 2022), and contributes to the development of cognitive analysis skills (Berry et al., 2023).

In the contemporary education system, instead of transferring stereotyped and ready-made information to students, it is considered a primary goal that individuals can access the right information by conducting research, using this information effectively, managing their mental processes and developing high-level cognitive skills (Göldağ & Kanat, 2018). In addition, as individuals of the future, raising students equipped with cognitive skills such as increasing their thinking capacities, decision making and problem-solving to cope with the challenges of real life should be one of the main goals of the education system. Recent studies reveal that cognitive competencies such as new knowledge generation, awareness level and thinking skills are becoming increasingly important (Tuzcuoğlu, 2018). Metacognition, which evaluates events, processes, information and psychological structures related to the interpretation, organization and control of thought, includes the individual's self-awareness, conscious monitoring and the ability to regulate understanding (Wells & Cartwright-Hatton, 2004). Students with high metacognitive awareness can think more strategically, exhibit higher performance and realize more effective learning processes compared to those with low metacognitive awareness (Soyer & İnaler, 2024). Metacognition, which is thought to be developed through mindfulness-based training (Posner et al., 2015), also includes cognitive processes such as attention, memory, and control Pearman et al., 2020; Verhaeghen, 2021). While these processes affect the decision mechanisms of the individual, it is stated that the level of metacognition is one of the important factors in moral decision-making attitude (Miliken, 2018). It is stated that moral metacognition, a special field of metacognition, plays a mediating role between high mindfulness and psychological variables (e.g., decision-making and decision-making) (Deniz et al., 2017). In addition, it is stated that mindfulness-oriented mental experiences closely interact with morality and moral learning (Cheruvalath, 2019).

The self-regulation component of mindfulness creates a link between the control mechanism of an individual over his/her emotions and the concept of emotional intelligence. In this context, the individual's conscious management of his/her own emotions and behaviors and reflecting them outwardly also contributes to the correct understanding and synthesis of the actions of the individuals in front of him/her (Schutte & Malouff, 2011). It is stated that emotional intelligence is a fundamental element in the decision-making processes of individuals (Trinidad et al., 2004), individuals with high levels of emotional intelligence can make the right decisions by using their

psychological skills effectively and exhibit positive performance outcomes in both general and sporting contexts (Laborde et al., 2016). This is because individuals with high emotional intelligence not only have the ability to recognize and evaluate their own emotions but also show the ability to understand and evaluate the emotions of others (Libbrecht et al., 2014). It is stated that there is a significant relationship between cognitive processes and emotions (Reynolds, 2006) and there is a positive relationship between mindfulness and emotional intelligence (Koole, 2009). In addition, it has also been revealed that mindfulness supports individuals to make morally correct decisions by increasing self-esteem (Goldin & Gross, 2010).It is based on research findings and information from the literature;

Awareness training for parents, educators and community members, especially at an early age,

Various shows, cinema screenings and TV shows are organized by contacting the relevant institutions, and case studies and TV shows are organized on difficult-to-understand concepts such as cognition, metacognition and morality, and the subjects are brought to an understandable level,

Including more content on ethical values in education programs,

Conducting studies on different age groups, communities, etc. by adding different variables to obtain more reliable results in terms of social reality,

It is recommended to conduct studies using qualitative, mixed, longitudinal and single-person research models to investigate the results of mindfulness-based education, moral development and changes in emotional intelligence in depth.

## Author Contributions

E.S: data collection. E.S.: data analysis and original draft preparation. E.S., E.T. and İ.U: review and editing. All authors have read and agreed to the published version of the manuscript.

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## Institutional Review Board Statement

The data of the study were collected after the decision of Erzincan Binali Yıldırım University Human Research Health and Sports Ethics Committee (protocol no: 20.02.2023-02/11) and the research application permission of the Ministry of National Education General Directorate of Vocational and Technical Education (dated 28.03.2023 and numbered E-62045208-605.01-73247518) after the informed consent of the participants was obtained. Participants were informed that they could withdraw from the study at any time. All procedures performed in this study were by the 1964 Declaration of Helsinki and ethical standards.

## Informed Consent Statement

Informed consent was obtained from all subjects involved in this study.

## Data Availability Statement

Datasets are available through the corresponding author upon reason-able request.

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## Conflicts of Interest

The authors unequivocally assert that this research was undertaken while devoid of any commercial or financial affiliations that might be perceived as potential conflicts of interest.

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