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Full Length Research Paper

The effect of the imagination levels of the faculty of sports sciences students on mental toughness

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ABSTRACT

The aim of this study is to evaluate the effect of the imagination levels of the students of the faculty of sports sciences on mental toughness. The demographic form containing personal information, the Sports Imagination Scale developed by Hall et al. (1998) and the scale adapted to Turkish by Vurgun (2010), reliability and validity study of which was carried out, were used to collect the data. It can be said that the imagination characteristics of the participants are at a good level and their mental toughness characteristics are close to the middle level. It was found that the imagination and mental toughness of the participants did not differ according to the gender variable. The imagination levels of the participants who are interested in team sports and who are engaged in individual sports do not differ significantly. When we look at the results obtained within the scope of correlation analysis in the study, it was found that there is a moderate and positive relationship between imagination and mental toughness. As a result of the regression analysis, it was found that imagination in sports has a significant positive contribution in explaining its effect on mental toughness. It can be said that the higher the level of imagination in sports, the higher the mental toughness.

Keywords: Mental toughness, imagination, sports.

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INTRODUCTION

Because of the psychological and physiological structure of humans, it is widely acknowledged that mental and psychological characteristics, in addition to physical characteristics, have a significant impact on performance. In this regard, it is critical to cultivate both psychological and physiological capacities in order to improve athletes' performance (Konter, 2003).

It is seen that the concept of imagination, which has come to the fore with psychological, religious and recently sportive motifs, is derived from the words image and imagination. The image is used as the equivalent of words such as shadow, silhouette, dream and vision, and the image is assumed to be a reflection in the mind, that is, the inner reality is animated. The ability to connect, associate, create new products and concepts between existing images is also known as imagination (Işıldak, 2008).

The reason is that the performance, which is required to achieve success in sports, is possible through the harmony of basic motoric features with technical, tactical and psychological factors (Roberts et al., 1999). An individual's mental health also contributes to the development of his physical characteristics (Güngör and Çelik, 2020). There are many psychological skills that affect the development of physical performance, one of which is the imagination skill. Imagination is referred to as the intense visualization of the movement to be executed without actually performing it (İkizler and Karagözoğlu, 1997). Loehr (1986) emphasizes that excellent performance depends on a number of psychological and mental factors and these skills can be learned like any skill. Mental well-being also aids in the development of physical characteristics. In this sense, mental toughness and imagination are also critical principles for sportive success (Golby and Sheard, 2006; Loehr, 1986). Jones et al. (2007) defined mental toughness as: *"Having natural or developed psychological characteristics such as concentration, confidence, and the ability to control*

pressure, which are allow the athlete to cope better than his/her opponent in meeting his/her many needs (competition, training, lifestyle), which is reflected in the performance of the athlete and especially makes him/her more consistent and better than his/her opponent".

Mentally resilient athletes consider losing and failure as a feedback or an opportunity to rehabilitate (Cowden et al., 2014). Despite the sufficient physical capabilities of athletes, their poor performance in competitions increases the importance of mental toughness in athletes (Altıntaş 2015; Çelik and Güngör, 2020).

According to Kosslyn et al. (2001), imagination is the state of having a sensory experience in the absence of a physical stimulus. Imagination, which is a well-researched subject in the field of sports psychology, is used by many athletes in training, competition and non-training settings. It is one of the most preferred skills by athletes in psychological skill training (Morris et al., 2005). Mental and emotional factors can often be more effective than physical, physiological, technical, biomechanical and tactical factors in athletes. The combination of all technical and tactical practices required by the physiological (strength, speed, toughness, flexibility, etc.) branch and psychological skills (imagination, motivation, self-confidence, stress management, attention, concentration, cognitive strategies, psycho-energy management, etc) causes performance, success and failure in sports (Konter, 1998).

From this information, mental toughness and imagination levels are very important for the performances of athletes. The aim of this study was to examine the effect of imagination levels of students of sports sciences faculty on mental toughness.

METHOD

Research model

In this study, relational survey model, one of the quantitative research methods, was used. Relational survey models are research models that aim to determine the presence and/or degree of co-change between two or more variables (Karasar, 2013). The effect of imagination levels of students of sports sciences faculty on their mental toughness was presented using the relevant research model.

Study group

Sample of study consists of a total of 154 participants, 98 (63.6%) male and 56 (36.4%) female, who were studying at the sports science faculty of a public university in the academic year 2018-2019 and also participated in sports competitions with university teams. 96 of the participants (62.3%) are interested in any of the team sports and 58 (37.7%) of them are interested in any of the individual sports. However, 60 (39%) of the participants have a license in the sports branch they are interested in, while 94 (61%) are amateurishly engaged in the relevant branch. The mean age of the study group was determined as 20.9 ± 3.64.

Data collection tools

Mental toughness in sports inventory

On the inventory developed by Sheard et al. (2009), a validity and reliability test was performed by Altıntaş and Bayar Koruç (2016) and the inventory was introduced into the Turkish literature. Consisting of 14 items in total, the scale includes 3 sub-dimensions: "trust", "control" and "continuity". In addition to this, the scale can also be used by considering the total evaluation. The score obtained from the scale increases when the mental toughness level increases. However, the internal consistency coefficient obtained from the data set for the whole scale is .73.

Imagination in sports scale

Validity and reliability studies were carried out by Vurgun (2010) on the Imagination in Sports Scale developed by Hall et al. (1998) and it was introduced into the Turkish language. The scale consists of 30 items and 5 sub-dimensions. These sub-dimensions are "motivational specific imagination", "cognitive specific imagination", "cognitive general imagination", motivational general stimulus "and" motivational general mastery". The scale can also offer value over the total score. The internal consistency coefficient obtained from the data set of the scale was determined as .93.

Data analysis

In the analysis of the data, first of all, the form with 9 extreme values detected in the data set was excluded. Then, in order to determine whether the data set showed normal distribution or not, the results of the Shapiro Wilk Test and the skewness and kurtosis values were examined. For the scales in the research, these values were determined to be between -1.5 and +1.5. This result indicates that the data show a normal distribution (Tabachnick and Fidell, 2013). Pearson Product Moment Correlation Coefficient (r) was used to determine the relationship between variables. In addition, descriptive statistics and T-Test were also used. Linear regression analysis was performed between imagination and mental toughness variation. Analyzes were completed using Excel and SPSS 22 Programs.

FINDINGS

As shown in Table 1, the mean score of the participants obtained from the Imagination Scale was found to be ($\overline{X}$=5.45), and the mean score of the participants was determined to be ($\overline{X}$=5.61) for the sub-dimension "motivational specific imagination", to be ($\overline{X}$=5.47) for the sub-dimension "cognitive specific imagination", to be ($\overline{X}$=5.50) for the sub-dimension "cognitive general imagination", to be ($\overline{X}$=5.04) for the sub-dimension "motivational general stimulus" and to be ($\overline{X}$=5.65) for the sub-dimension "motivational general mastery".

As shown in Table 2, the mean score of the participants obtained from the Mental Toughness Inventory was found to be ($\overline{X}$=2.92), and the mean score of the participants was determined to be ($\overline{X}$=3.01) for the sub-dimension "trust", to be ($\overline{X}$=2.23) for the sub-dimension "control" and to be ($\overline{X}$=3.78) for the sub-dimension "continuity".

As shown in Table 3, the mean score of male participants from the Imagination Scale is ($\overline{X}$=5.47), while that of female participants is ($\overline{X}$=5.42). The mean score of male participants from the Mental Toughness Inventory was determined as ($\overline{X}$=2.95), while that of female participants was found to be ($\overline{X}$=2.88). According to the analysis results, it was determined that the imagination and mental toughness of the participants did not differ according to the gender variable, $t_1(152) = -.33$, $p > .05$; $t_2(152) = .93$, $p > .05$.

As shown in Table 4, the mean score of the participants, who are interested in team sports, from the Imagination Scale is ($\overline{X}$=5.60), while that of the participants, who are interested in individual sports, is ($\overline{X}$=5.20). The mean score of the participants, who are interested in team sports, from the Mental Toughness Inventory was found to be ($\overline{X}$=2.97), while that of the participants, who are interested in individual sports, was found to be ($\overline{X}$=2.84). Considering the analysis results, it was concluded that the mental toughness of the participants differed statistically in favor of the participants who were interested in team sports in terms of the sports branch variable, $t_2(152)=1.94$, $p < .05$.

When Table 5 is examined, it can be stated that there is a moderate and positive relationship between imagination and mental toughness ($r = .35$, $p < .01$).

Analysis results show that a significant effect has been detected in the relationship of imagination with mental toughness ($\beta_1 = .34$; $p < .05$) (Table 6). Considering the results of the regression analysis, it can be stated that 12% of mental toughness is explained by the imagination feature.

Table 1. Distribution of the mean scores of the participants on the imagination scale.

Scales	N	Min	Max	x̄	S
Motivational specific imagination	154	1.83	7.00	5.61	1.23
Cognitive specific imagination	154	1.67	7.00	5.47	1.09
Cognitive general imagination	154	2.33	7.00	5.50	1.10
Motivational general stimulus	154	1.67	7.00	5.04	.98
Motivational general mastery	154	2.00	7.00	5.65	1.10
Total	154	2.13	7.00	5.45	1.01

Table 2. Distribution of the mean scores of the participants from the mental toughness inventory.

Scales	N	Min	Max	x̄	S
Trust	154	2.00	3.67	3.01	.41
Control	154	1.00	4.00	2.23	.75
Continuity	154	1.75	4.00	3.78	.52
Total	154	1.64	3.79	2.92	.40

Table 3. T-Test results of participants' mean scores from imagination scale and mental toughness inventory according to gender.

Scales	Gender	N	x̄	S	sd	t	P
Imagination	Male	98	5.47	.97	152	.33	.73
	Female	56	5.42	1.09			
Mental toughness	Male	98	2.95	.40	152	.93	.35
	Female	56	2.88	.40			
	Total	154					

Table 4. T-Test results of the participants' mean scores from the imagination scale and mental toughness inventory according to the sport branch.

Scales	S. Branch	N	x̄	S	sd	t	P
Imagination	Team	96	5.60	.91	152	2.42	.22
	Individual	58	5.20	1.12			
Mental toughness	Team	96	2.97	.35	152	1.94	.02
	Individual	58	2.84	.46			
	Total	154					

Table 5. Investigation of the Relationship between variables with the Pearson product moment correlation.

	Mental toughness
Imagination	.35**

p < .01.

Table 6. Regression analysis results on the prediction of mental toughness.

Variables		Standardize β	Standard Error	Critical Rate	p	R^2
Imagination	M. Toughness	.34	.03	4.51	.00	.12

DISCUSSION AND CONCLUSION

A total of 154 individuals, 98 males and 56 females, with an average age of 20.9±3.64, took part in this study, which examined the effect of imagination levels of students from the faculty of sports sciences on mental toughness.

The mean total score of the participants on the imagination scale was determined to be 5.45 (Table 1). On the basis of the relevant score, it can be concluded that the participants have a good level of imagination characteristics. The mean total score of the participants from the mental toughness inventory was determined to be 2.92 (Table 2). In the light of the relevant score, it can be said that the mental toughness characteristics of the participants are close to medium level.

Considering the T-test results to determine whether the imagination and mental toughness of the participants differ according to the gender variable, it was found that neither imagination nor mental toughness differed according to gender (Table 3). There are studies in the relevant literature that support the current research results. Athletes participating in winter sports have similar levels of imagination regardless of gender (Erdoğan and Erhan, 2019). In a study on basketball, football and volleyball athletes, it was found that there was no difference in male and female participants' imagination scores (Doğan, 2019). In the literature, there are different findings about mental toughness. It was determined that the mental toughness of the participants did not vary significantly according to gender (Şahinler and Ersoy, 2019; Tekkurşun-Demir and Türkeli, 2019). In the studies by Nicholls et al. (2009), asum (2014), and Menteş and Saygın (2019), the mental toughness of the participants shows significant differences. The various directional findings are thought to arise from the sample groups.

The imagination levels of the participants who are interested in team sports and who are engaged in individual sports do not differ significantly. In the research on the athletes participating in the Turkish archery championship, Tekin (2018) claims that there is no significant difference in cognitive imagination, motivation-specific imagination, and motivational general mastery. In their studies applied on female basketball players, Yamak et al. (2018) reported that the imagination levels of basketball players differ significantly. Yarayan and Ayan (2018) detected significant differences in their research conducted with the participation of athletes in the branches of football, volleyball, basketball, handball and ice hockey throughout the season 2016-2017. Likewise, Yamak (2019) reported that imagination levels of female handball players differ significantly in all variables. In mental toughness, on the other hand, there are significant differences in favor of the participants who are interested in team sports (Table 4). Individual athletes have higher mental toughness levels than team athletes, according to studies in the relevant literature (Yarayan et al., 2018). According to Farrokhi et al. (2011), athletes

who are participating in individual sports have significantly different mental toughness than those who are interested in team sports. In terms of nature sports, Gürer and Kılınç (2019) reached significant differences in the sub-dimension of control of mental toughness. As a result, it was observed that those who do equestrian sports are much more controlled, while those who participate in mountaineering are less controlled. A significant difference was observed between kick boxing and judo branches in terms of mental toughness (Demir and Çelebi 2019). The mental toughness levels of mountain bikers were found to vary significantly (Kalkavan et al., 2020).

According to the findings of correlation analysis in the study, there is a moderate and positive relationship between imagination and mental toughness. As a result of the regression analysis, it was discovered that imagination in sports plays a major role in explaining its effect on mental toughness. It can be said that as the level of imagination increases in sports, do does mental toughness (Table 6). The motivational general mastery dimension of imagination is the strongest predictor of mental toughness according to the study by Bozlar (2020) with the participation of professional football players. According to Akman (2019), athletes' psychological skills play a significant role in determining mental toughness.

In the study by Mattie (2009) on the relationship of MT with both imagination and the three motivational dimensions of imagination, it was concluded that the use of imagination was determinant in predicting mental toughness and the motivational functions of imagination significantly predicted mental toughness (Mattie 2009). Therefore, Mattie discovered a strong relationship between imagination and mental toughness in this study. Crust and Azadi found a positive relationship between mental toughness and imagination in their studies (Crust and Azadi, 2010). Mattie and Munroe-Chandler revealed in their study that the use of imagination is a strong predictor of mental toughness (Mattie and Munroe, 2012).

In the related literature, there are several studies on imagination and mental toughness. However, a study examining imagination and mental toughness together in domestic and international literature was found to be limited. As a consequence of the contribution to the related literature, the findings of this study are considered important. As a result, it was found that the participants 'imagination and mental toughness did not change significantly according to demographic variables, and that the participants' imagination characteristics were at a great level and their mental toughness was close to the middle level. In the relational context, it can be said that there is a moderate and positive relationship between imagination and mental toughness, that it makes a significant and positive contribution in explaining the effect of imagination in sports on mental toughness, and that as the level of imagination increases in sports, so does mental toughness.

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