(ISSN: 2587-0238)

Özmaden, M. (2025). The Effect Of Mental Toughness Levels Of Active Rink And Tatemi Athletes On Athlete Engagement And Exercise Addiction, *International Journal of Education Technology and Scientific Researches, 10(30), 43-54.*

DOI: http://dx.doi.org/10.35826/ijetsar.766

Article Type (Makale Türü): Research Article

THE EFFECT OF MENTAL TOUGHNESS LEVELS OF ACTIVE RINK AND TATEMI ATHLETES ON ATHLETE ENGAGEMENT AND EXERCISE ADDICTION[1]

Murat ÖZMADEN

Assoc. Prof. Dr., Igdır University, Igdır, Türkiye, muratozmaden@gmail.com

ORCID: 0000-0002-5913-6653

Received: 13.09.2024 *Accepted: 14.02.2025* *Published: 01.03.2025*

ABSTRACT

This study, it was aimed to examine the effect of athletes' mental toughness levels on athlete engagement and exercise addiction levels. In our research, the relational screening model was used to determine the relationship between Athletes' Mental Toughness Levels, Athlete Engagement and Exercise Addiction Levels. In this model, questions such as the degree of change between variables or the level of the situation examined arise with relational screening designs. The data were delivered to the participants via Google Forms, taking into account situations such as cost and accessibility, and participation was based on voluntary participation. The study group of the research consisted of athletes engaged in defense (combat) sports in 2023. In the study, the Athlete Engagement Scale (AES) developed by Lonsdale, Hodge and Jackson (2007) and adapted into Turkish by Kelecek, Kara and Aşçı (2017), the "Mental Toughness Inventory in Sports" (MTIS-14) developed by Sheard et al. (2009) and adapted into Turkish by Altıntaş (2015), and the Exercise Addiction Scale for Young People developed by Lichtenstein et al. (2018) and adapted into Turkish by Dokuzoğlu et al. (2022) were used as data collection tools. SPSS 25.00 package program was used for data analysis. Whether the data were normally distributed or not was decided based on the skewness and kurtosis values between ±2. Statistically, Pearson correlation analysis, linear regression analysis, frequency, percentage and reliability coefficient calculations were used. As a result of the research, it was determined that mental toughness has a significant effect on athlete Engagement and exercise addiction.

Keywords: Exercise Addiction, Mental Endurance, Defense Sports.

Corresponded Author: Assoc. Prof. Dr. Murat ÖZMADEN, Iğdır Unıversıty, muratozmaden@gmail.com.
Ethics Committee Approval: The ethical approval for this study was obtained from Iğdır University Scientific Research and Publication Ethics Committee, decision numbered 2023/7 dated 06/04/2023.
Plagiarism/Ethics: This article has been reviewed by at least two referees and has been confirmed to comply with research and publication ethics, containing no plagiarism.

[1] This study was presented as an oral presentation at the 17th FIEPS European Congress.

INTRODUCTION

Sport is an integral part of modern life (Altınışık, Turhal, Çelik, & Yetim, 2020). The importance of sportive activities for people to maintain a better life both physically and psychologically has been understood more with various scientific studies conducted recently (Cited in Altınışık & Çelik, 2021). Besides, the positive outcome of these activities on disadvantaged groups is inevitable (Altınışık, İlhan & Kurtipek, 2021). Sport helps not only physical, social and behavioural development but also cognitive, academic and emotional development. These benefits arise naturally due to the process of doing sports. Sports activities tend to lead to better social understanding, improved moral judgement, increased sportsmanship and personal responsibility (Gibbons, Ebbeck, & Weiss, 1995). There is a strong belief that sport helps pro-social behaviour and tends to reduce criminal and anti-social behaviour (Morris et al., 2003).

Mental toughness is often an important psychological construct associated with optimal sports performance (Connaughton, Hanton, & Jones, 2010). Researchers have identified several key characteristics of mentally tough athletes. These include unwavering self-confidence, the ability to bounce back after setbacks, and the ability to remain fully focussed on the task (Jones et al., 2002; Potgieter & Fourie, 2001).

Engagement is a positive mental state that is constantly felt, persisted and satisfied with the job (Scahaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). In other words, Engagement is defined as the inability to control one's impulses at the point of getting used to a substance that causes emotional, mental or physiological reactions, quitting or implementing an activity (Byun et al., 2009). On the other hand, Engagement in sports can be defined as continuous and consistent experiences that include concepts such as belief, effort, energy and pleasure in sports environments (Lonsdale et al., 2007).

Addiction can be thought of as reward-related learning or Pavlovian conditioning leading to incompatible behaviours [Everitt & Robbins, 2005). According to this theory, there is a transition from impulsive drug taking motivated by immediate gratification to compulsive drug taking; obsessive behaviour that causes stress and anxiety is only relieved by the repetitive behaviour of taking drugs. As this transition occurs, there is a shift from positive reinforcement (hedonic effect of the drug) to negative reinforcement (avoidance of withdrawal symptoms) (Koob & Le Moal, 2008; Koob & Volkow, 2010).

Exercise can be defined as "structured, deliberate physical activity to improve health and fitness" (Garber et al., 2011). The benefits of regular exercise in adults (aged 18 years and older) include reduced risk of all-cause mortality, various types of non-communicable diseases (Warburton & Bredin, 2017), improved cognitive function and improvements in various mental health domains (Ashdown-Franks, Sabiston, & Stubbs, 2019). Despite a variety of positive health outcomes, exercise has been linked to the loss of important social relationships through training, withdrawal symptoms, and over-exercise through injury to the exerciser (Landolfi, 2013). Such an extreme relationship with exercise has been variously labelled in the literature with terms used synonymously, including 'exercise addiction', 'exercise dependence', 'compulsive exercise' and 'excessive exercise' (Szabo et al., 2015).

Cognitive and emotional factors that make up the components of empathy are also of great importance in Far Eastern sports, which have a large athlete base in the world. In studies on empathy, it has been found that individuals with empathic skills are more successful in understanding the reasons for their behaviour as well as the reasons for the behaviour of others and make positive contributions to people with different views (Sezen-Balçıkanlı & Sezen, 2017; Yüksel, 2004). Universal values such as respect, love, benevolence, tolerance, justice and equality, which form the basis of defence sports, are among the essentials of empathic skills (Koçak & Balçıkanlı, 2021).

This study aimed to investigate the effect of mental toughness levels of individuals engaged in defence sports on athlete Engagement and exercise addiction levels according to various variables such as age, gender, sports branch, sports experience, weekly sports frequency, and national sportsmanship status.

METHOD

Research Model

In our research, the relational screening model was used to determine the relationship between Athletes' Mental Toughness Levels, Athlete Engagement and Exercise Addiction Levels. In this model, questions such as the degree of change between variables or the level of the situation examined arise with relational screening designs (Gürbüz & Şahin, 2016).

Research Group

The study group of this research consisted of athletes engaged in combat sports in 2022. The study included 297 active athletes, and 2 questionnaire forms showing outlier values were excluded from the analysis.

Data Collection

The data were delivered to the participants via Google Forms, taking into account situations such as cost and accessibility, and participation was based on voluntary participation.

Data Collection Tools

Personal Information Form

To determine the demographic characteristics of the participants, a 6-question personal information form created by the researcher was used to determine information such as age, gender, sports branch, sports experience, weekly sports frequency, and national athlete status.

Athlete Engagement Questionnaire

The scale, developed by Lonsdale, Hodge, and Jackson (2007) and adapted into Turkish by Kelecek et al. (2017), consisted of 16 items. The scale had a 5-point Likert-type scale. The scale consisted of the dimensions of

confidence, dedication, vigour, and enthusiasm. Cronbach Alpha values applied to the sub-dimensions of the scale were determined as 0.92 for the reliability coefficient of the confidence sub-dimension, 0.75 for the dedication sub-dimension, 0.83 for the vigour sub-dimension and 0.90 for the enthusiasm sub-dimension.

In our research, the reliability coefficient for the confidence sub-dimension was 0.91, the reliability coefficient for the dedication sub-dimension was 0.86, the reliability coefficient for the vigour sub-dimension was 0.90 and the reliability coefficient for the enthusiasm sub-dimension was 0.90.

Mental Toughness Inventory in Sport

The "Mental Toughness Inventory in Sport" (MTIS-14), developed by Sheard et al. (2009) and adapted into Turkish by Altıntaş (2015), consisted of 14 items. The scale consisted of confidence, Constancy and control sub-dimensions. The scale had a 4-point Likert-type scale. Questions 2, 4, 7, 8, 9, and 10 of the scale were reverse-coded. Cronbach Alpha values applied to the sub-dimensions of the scale were found as 0.81 for the confidence sub-dimension, 0.74 for the constancy sub-dimension and 0.71 for the Control sub-dimension. In our study, it was found as 0.79 for the Confidence sub-dimension, 0.67 for the constancy sub-dimension and 0.75 for the Control sub-dimension.

Exercise Addiction Scale for Young People

The Exercise Addiction Scale for Young People, developed by Lichtenstein et al. (2018) and adapted into Turkish by Dokuzoğlu et al. (2022), consisted of 5 items and one dimension. The scale had a 5-point Likert-type scale. In the Turkish adaptation of the scale, the Cronbach Alpha value was determined as 0.71, while in our study it was determined as 0.71.

Data Analysis

The data were analysed using SPSS 25.00 package programme at a 95% confidence interval and 0.05 significance level. It was decided whether the data showed normal distribution or not considering skewness and kurtosis values between ±2 (Shao, 2002). Statistically, Pearson correlation analysis, linear regression analysis, frequency, percentage and reliability coefficient calculations were performed.

Ethics Statement: In this article, the journal's writing rules, publication principles, research and publication ethics rules, and journal ethical rules have been complied with. The authors are responsible for any violations that may occur regarding the article. The article's ethics committee approval was obtained by the Iğdır University Scientific Research and Publication Ethics Committee, decision numbered 2023/7 dated 06/04/2023.

FINDINGS

In this section, the findings are presented under separate headings according to sub-objectives.

Tablo 1. Demographic variables

Variables		f	%
Age	15-18 years old	150	50,8
	19-22 years old	78	26,4
	23-26 years old	23	7,8
	27 and older	44	15
	Total	295	100
Gender	Female	126	42,7
	Male	169	57,3
	Total	295	100
Sport branch	Boxing-Kickboxing	127	43
	Judo	81	27,5
	Karate	38	12,9
	Muaythai	49	16,6
	Total	295	100
Sport experience	1-4 years	102	34,6
	5-8 years	94	31,9
	9-12 years	52	17,6
	13 years and more	47	15,9
	Total	295	100
Weekly Sport Frequency	1-2 days	19	6,4
	3-4 days	90	30,6
	5-6 days	131	44,4
	7 days	55	18,6
	Total	295	100
National Athlete Status	Yes	105	35,6
	No	190	64,4
	Total	295	100

When Table 1 was examined, in the age variable, the 15-18 age range took the first place with 150 participants, the 19-22 age group took the second place with 78 participants, the 27 and older age group took the third place with 44 participants and the 23-26 age group took the last place with 23 participants. In the gender variable, male participants were in the first place with 169 people and female participants were in the second place with 126 people. In the sports branch variable, the Boxing-Kickboxing branch with 127 people in the first place, the Judo branch with 81 people in the second place, the Muay-thai branch with 49 people in the third place and the Karate branch with 38 people in the last place. When we look at the sports experience variable, the participants with a sports history of '1-4 years' were in first place with 104 people, the participants with a sports experience of '5-8 years' were in second place with 94 people, the participants with a sports experience of '9-12 years' were in third place with 52 people and the participants with a sports experience of '13 years and more' were in the last place with 47 people. In the variable of the weekly sports frequency, the participants who do sports '5-6 days' a week with 131 people in the first place, those who do sports '3-4 days' a week with 90 people in second place, those who do sports 'every day' with 55 people in the third place and those who do sports '1-2 days' weekly with 19 people in the last place. When we look at the national athlete status, it can be seen that the majority of the participants were non-national athletes with 190 people, while 105 people were national athletes.

Table 2: Pearson Correlation Analysis Results for Variables

		1-	2-	3-	4-	5-	6-	7-	8-
Athlete Engagement Scale	1- Confidence	1							
		-							
	2- Dedication	,632**	1						
		,000	-						
	3- Vigour	,509**	,534**	1					
		,000	,000	-					
	4- Enthusiasm	,494**	,538**	,742**	1				
		,000	,000	,000	-				
E.E	5- Exercise Engagement	,258**	,363**	,284**	,286**	1			
		,000	,000	,000	,000	-			
Mental Toughness in Sport	6- Confidence	-,595**	-,409**	-,491**	-,439**	-,324**	1		
		,000	,000	,000	,000	,000	-		
	7- constancy	-,439**	-,449**	-,448**	-,419**	-,266**	,454**	1	
		,000	,000	,000	,000	,000	,000	-	
	8- Control	-,242**	-,145*	-,236**	-,095	,028	,190**	,354**	1
		,000	,013	,000	,102	,634	,001	,000	-

Table 2 showed that there was a moderately significant and negative relationship between confidence in Mental Toughness and Confidence in athlete Engagement, dedication, vigour, enthusiasm and exercise addiction ($p<0.01$). There was a moderately significant and negative relationship between persistence in Mental Toughness and confidence in athlete Engagement, dedication, vigour and enthusiasm ($p<0.01$). There was a low level of a significant and negative relationship between constancy in Mental Toughness and exercise addiction ($p<0.01$). There was a low significant and negative relationship between control in Mental Toughness and confidence, dedication and vigour in athlete Engagement ($p<0.01$).

Table 3: Linear Regression Analysis to Examine the Effect of Mental Toughness on Confidence in Athlete Engagement

Dependent Variable	**Independent Variable**	**β**	**Standard Error**	**Beta**	**t**	**p**	**F**	**R^2**	**Durbin Watson**
Confidence	Stable	6,455	,200	-	32,247	,000	63,642	,390	1,822
	Confidence	-,745	,077	-,496	-9,688	,000			
	constancy	-,272	,079	-,185	-3,447	,001			
	Control	-,102	,061	-,082	-1,689	,092			

p<0,01**, p<0,05*

According to the regression analysis result in Table 3, it can be seen that the confidence sub-dimension, constancy sub-dimension and control sub-dimension of mental toughness have a statistically significant and negative effect on confidence in athlete Engagement. It can be seen that 39% of the change in confidence in athlete Engagement is explained (Adjusted =0.390). 1 unit increase in the variable of confidence in mental toughness caused -,745 decrease in confidence in athlete Engagement (β=-,745); 1 unit increase in the variable of constancy in mental toughness caused -,272 decrease in confidence in athlete Engagement (β=-,272). Besides, It was observed that the sub-dimension of control in mental toughness did not have a statistically significant effect on confidence in athlete Engagement ($p>0.05$).

Table 4: Linear Regression Analysis to Examine the Effect of Mental Toughness on Engagement sub-dimension

Dependent Variable	Independent Variable	β	Standard Error	Beta	t	p	F	R^2	Durbin Watson
Engagement	Stable	6,050	,254	-	23,791	,000	33,296	,248	2,011
	Confidence	-,446	,098	-,259	-4,567	,000			
	constancy	-,573	,100	-,340	-5,710	,000			
	Control	,035	,077	,025	,456	,649			

p<0,01**, p<0,05*

It was observed that the confidence sub-dimension and constancy sub-dimension of mental toughness had a statistically significant and negative effect on Engagement (p<0.05). It can be seen that 24.8% of the change in athlete Engagement is explained (Adjusted =0.248). An increase of 1 unit in the confidence variable in mental toughness causes a decrease of -,446 on the Engagement sub-dimension (β=-,446); an increase of 1 unit in the constancy variable in mental toughness causes a decrease of -,573 on Engagement sub-dimension (β=-,573). It was observed that the control sub-dimension of mental toughness did not have a statistically significant effect on athlete Engagement (p>0.05).

Table 5: Linear Regression Analysis to Examine the Effect of Mental Toughness on Vigour in Athlete Engagement

Dependent Variable	Independent Variable	β	Standard Error	Beta	t	p	F	R^2	Durbin Watson
Vigour	Stable	6,274	,209		30,000	,000	43,632	,303	1,964
	Confidence	-,529	,080	-,360	-6,586	,000			
	Constancy	-,370	,083	-,258	-4,490	,000			
	Control	-,092	,063	-,076	-1,457	,146			

p<0,01**,p<0,05*

It was observed that the trust and constancy sub-dimension of mental toughness had a statistically significant and negative effect on vigour in athlete Engagement. It was seen that 30.3% of the change on vigour in athlete Engagement was explained (adjusted =0.303). An increase of 1 unit in the confidence variable in mental toughness caused a decrease of -,529 (β=-,529) in vigour in athlete engagement; an increase of 1 unit in the constancy variable in mental toughness caused a decrease of -,370 (β=-,370) in vigour in athlete engagement. It was observed that the control sub-dimension of mental toughness did not have a statistically significant effect on vigour in athlete Engagement (p>0.05).

Table 6: Linear Regression Analysis to Analyse the Effect of Mental Toughness on Enthusiasm in Athlete Engagement

Dependent Variable	Independent Variable	β	Standard Error	β eta	t	p	F	R^2	Durbin Watson
Enthusiasm	Stable	5,671	,178	-	31,862	,000	33,710	,250	2,053
	Confidence	-,382	,068	-,317	-5,585	,000			
	Constancy	-,354	,070	-,300	-5,039	,000			
	Control	,071	,054	,071	1,315	,190			

p<0,01**,p<0,05*

It was observed that the confidence and constancy sub-dimension of mental toughness had a statistically significant and negative effect on enthusiasm in athlete engagement, while the control dimension had a significant and positive relationship with enthusiasm. It can be seen that 25% of the change in athlete dedication in engagement was explained (Adjusted =0.250).). An increase of 1 unit in the confidence variable in mental toughness caused a decrease of -,382 in enthusiasm in athlete engagement (β=-,382); an increase of 1 unit in the constancy variable in mental toughness caused a decrease of -,354 in enthusiasm in athlete engagement (β=-,354). Besides, it was observed that the control sub-dimension of mental toughness did not have a statistically significant effect on enthusiasm in athlete engagement (p>0.05).

Table 7: Linear Regression Analysis to Examine the Effect of Mental Toughness on Exercise Addiction

Dependent Variable	Independent Variable	β	Standard Error	Beta	t	p	F	R^2	Durbin Watson
Exercise Addiction	Stable	4,617	,232		19,935	,000	16,053	,133	1,997
	Confidence	-,381	,089	-,261	-4,282	,000			
	Constancy	-,286	,091	-,200	-3,129	,002			
	Control	,179	,070	,148	2,555	,011			

p<0,05*

It was observed that the confidence sub-dimension and constancy sub-dimension of mental toughness had a statistically significant and negative effect on exercise addiction, while the control dimension had a significant and positive relationship with exercise addiction (p<0.05). It was seen that 13.3% of the change in exercise addiction was explained (Adjusted =0.133). A 1-unit increase in the confidence variable in mental toughness caused a decrease of -,381 in exercise addiction (β=-,381); a 1-unit increase in the constancy variable in mental toughness caused a decrease of -,286 in exercise addiction (β=-,286); a 1-unit increase in the control variable in mental toughness caused an increase of ,179 in exercise addiction (β=,179).

CONCLUSION and DISCUSSION

This study aimed to investigate the effect of mental toughness levels of defence sports athletes on athlete engagement and exercise addiction levels. A total of 295 people (126 female and 169 male) participated in the study.

In the study, it was found that there was a significant and moderate negative relationship between the mental toughness sub-dimension of confidence and the athlete engagement sub-dimensions of confidence, dedication, vigour, enthusiasm and exercise addiction. When the relevant literature was examined, it was determined that the number of studies on mental toughness, exercise addiction and athlete engagement was quite limited and even there was no study on the subject related to combat athletes. Therefore, in this section, it would be appropriate to include the results of studies on athlete burnout, which can be seen as the opposite of the concept of mental toughness defined by Sheard et al. (2009) as the ability to cope with difficulties by making effective decisions under pressure and defined by Smith (1986) as the ineffective reactions of athletes to the stress they feel due to training and competitions. In a study conducted by Peke (2020), it was determined that there was a positive interaction between orienteering athletes' levels of mental toughness in sport and their level of engagement in sports. Besides, it was stated that the mental toughness of orienteering athletes had a positive effect on the sub-

dimensions of dedication, fitness/vigour and internalisation from the sub-dimensions of sports engagement. In other different studies conducted by Kelecek et al. on football players in 2018 and 2017, it was stated that there was a significant negative effect between athlete burnout and athlete engagement. The results of the studies in the literature and the results obtained in this study are not parallel with each other. It is thought that this situation might be related to the fact that defence athletes feel themselves at a low level in terms of athlete and exercise addiction since defence athletes are more vulnerable to direct physical impact and injuries as well as psychological pressure, unlike other sports branches. Considering the study group consists of elite athletes, it is thought that they may see defence sports as a job. In other words, athletes' self-confidence in the point that they can make effective decisions under pressure may cause them to see their sports branches as a job by evaluating them with a professional approach because they are licensed elite athletes. Considering this situation, it is possible to say that sport or exercise, which is seen as a job, will not bring a high level of engagement/addiction. This situation is considered the reason for the negative relationship in question.

It can be seen that there was a moderately significant and negative relationship between Mental Toughness and confidence, dedication, vigour and enthusiasm sub-dimensions of athlete engagement. There was a low level of a significant and negative relationship between constancy in Mental Toughness and exercise addiction. There was a low significant and negative relationship between control in Mental Toughness and confidence, dedication and vigour in athlete engagement. This situation is thought to be related to the fact that athletes have the high mental motivation and act with a thought far above their physical limits and that the facts that exist in reality are much different.

REFERENCES

Altınışık, Ü., Turhal, S. N., Çelik, A. & Yetim. A. A. (2020). Employability perceptions of sports manager candidates. *Ambient Science. 07*(Sp1), 275-279.

Altınışık, Ü. Çelik, A. (2021). Investigation of Service Quality Perceived by Fitness Center Consumers. Pakistan *Journal of Medical & Health Sciences, 10*(15), 3225-3229.

Altınışık, Ü., İlhan, E.L. ve Kurtipek, S. (2021). Zihinsel Engelli Bireylerde Sporun Etkilerine Yönelik Farkındalık: Spor Yöneticisi Adayları Üzerine Bir Araştırma. *CBÜ Beden Eğitimi ve Spor Bilimleri Dergisi, 16*(2), 79-90.

Altıntaş, A., & Koruç, P. B. (2016). Sporda Zihinsel Dayanıklılık Envanteri'nin Psikometrik Özelliklerinin İncelenmesi (SZDE). *Spor Bilimleri Dergisi, 27*(4), 163-171.

Ashdown-Franks, G., Sabiston, C.M. and Stubbs, B., 2019. The evidence for physical activity in the management of major mental illnesses: a concise overview to inform busy clinicians' practice and guide policy. *Current Opinion in Psychiatry, [online] 32*(5). Available at: [Accessed 22 April 2021].

Byun, S., Ruffini, C., Mills, J.E., Douglas, A.C., Niang, M., Stepchenkova, S., Lee, S.K., Loutfı, J., Lee, J.K., Atallah, M., & Blanton, M. (2009). Internet addiction: Metasynthesis of 1996-2006 quantitative research. *Cyberpsychology & Behavior, 12*(2), 203-207

Connaughton, D., Hanton, S., Jones, G., & Wadey, R. (2008). Mental toughness research: Key issues in this area. *International Journal of Sport Psychology, 39*(3), 192-204.

Dokuzoğlu, G., Çevik, A., Özmaden, M., Yıldız, Y., & Tezcan, E. (2022). Gençlere Yönelik Egzersiz Bağımlılığı Ölçeği (GYEB): Bir Ölçek Uyarlama Çalışması. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi, 11 (2),* 644-653.

Everitt, B. J., & Robbins, T. W. (2005). Neural systems of reinforcement for drug addiction: from actions to habits to compulsion. *Nat Neurosci, 8*(11), 1481- 1489.

Garber, C.E., Blissmer, B., Deschenes, M.R., Franklin, B.A., Lamonte, M.J., Lee, I.-M., Nieman, D.C. and Swain, D.P., 2011. Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: guidance for prescribing exercise. American *College of Sports Medicine [online]*. Available from https://academiccommons.columbia.edu/doi/10.7916/D8CZ3K08/download>. [Accessed 22 April 2021].

Gibbons, S, Ebbeck, V, & Weiss, M. (1995). Fair play for kids: effects on the moral development of children in physical education. *Research Quarterly for Exercise & Sport, 66*, 247- 255.

Gürbüz S. ve Şahin, F. (2016). *Sosyal Bilimlerde Araştırma Yöntemleri*. Ankara: Seçkin Yayıncılık.

Jones, G., Hanton, S., & Connaughton, D. (2002). What is this thing called mental toughness? An investigation of elite sport performers. *Journal of Applied Sport Psychology, 14*(3), 205-218.

Kelecek, S. ve Göktürk, E. (2017). Kadın Futbolcularda Sporcu Bağlılığının Sporcu Tükenmişliğini Belirlemedeki Rolü. *Sağlık Bilimleri Fakültesi Dergisi. 2*(2), 162- 173.

Kelecek, S. ve Koruç, Z. (2018). Futbolcuların Güdüsel Yönelim ve Spora Bağlılık Düzeylerinin Sporcu Tükenmişliğini Belirlemedeki Rolü. *Sağlık Bilimleri Fakültesi Dergisi. 2*(2), 102-116.

Kelecek, S., Kaya, F. M., & Aşçı, F. H. (2018). Sporcu Bağlılık Ölçeğinin Geçerlik Ve Güvenirlik Çalışması. *Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi*, *16*(3), 39-47.

Koçak, İ., & Balçıkanlı, G. S. (2021). Savunma Sporları ve Empati: Elit Sporcularda Empati Becerilerinin İncelenmesi. *Gazi Beden Eğitimi ve Spor Bilimleri Dergisi*, *26*(2), 203-218.

Koob, G. F., & Le Moal, M. (2008). Addiction and the brain antirew ard system. *Annu Rev Psychol, 59*, 29-53.

Koob, G. F., & Volkow, N. D. (2010). *Neurocircuitry of addiction. Neuropsychopharmacology, 85*(1), 217-238.

Landolfi, E., 2013. Exercise addiction. *Sports Medicine, 43*(2), pp.111–119.

Lichtenstein, M. B., Griffiths, M. D., Hemmingsen, S. D., & Støving, R. K. (2018). Exercise addiction in adolescents and emerging adults–Validation of a youth version of the Exercise Addiction Inventory. *Journal of behavioral addictions*, *7*(1), 117-125.

Lonsdale C, Hodge K, Raedeke TD. Athlete engagement: I. A qualitative investigation of relevance and dimensions. *International Journal of Sport Psychology. 2007*:451-70.

Lonsdale, C., Hodge, K., & Jackson, S.A. (2007). Athlete Engagement: II. Development and Initial Validation of The Athlete Engagement Questionnaire. *International Journal of Sport Psychology. 38*, 471-492.

Morris, L. et. al (2003). Sport, physical activity and antisocial behavior in youth, trends and issues in crimes and criminal justice. *Criminology*, 249, 1-6.

Potgieter, J. R., & Fourie, S. (2001). The nature of mental toughness in sport. *South African Journal for Research in Sport, Physical Education and Recreation*, *23*(2), 63-72.

Schaufeli, W.B., Salanova, M., Gonzales-Roma, V. ve Bakker, A.B. (2002). The measurement of Engagement and burnout: A two sample confirma- tory factor analytic approach. *Journal of Happiness Studies, 3*(1), 71-92.

Sezen-Balçıkanlı, G. ve Sezen, M. (2017). Professional Sports and empathy: relationship between professional futsal players' tendency toward empathy and fouls. *Physical Culture and Sport Studies and Research, 73*(1), 27-35. doi: 10.1515/pcssr-2017-0003

Sheard M, Golby J., Van Wersch A. (2009). Progress towards construct validation of the sports mental toughness questionnaire (SMTQ). *European Journal Of Psychological Assessment, 25*, 186-193.

Smith, R. E. (1986). Toward a Cognitive-Affective Model of Athletic Burnout. *Journal of Sport Psychology*, 8, 36-50.

Szabo, A., Griffiths, M.D., de La Vega Marcos, R., Mervó, B. and Demetrovics, Z., 2015. Methodological and Conceptual Limitations in Exercise Addiction Research. *The Yale Journal Of Biology And Medicine, 88*(3), pp.303–308.

Yüksel, A. (2004). Empati Eğitim Programının İlköğretim Öğrencilerinin Empatik Becerilerine Etkisi. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi, 17*(2), 341-354.

Ethics Statement: "In this article, the journal writing rules, publication principles, research and publication ethics rules, and journal ethics rules have been complied with. The responsibility for any violations that may arise regarding the article belongs to the author(s). The article's ethics committee approval was obtained by the Iğdır University Scientific Research and Publication Ethics Committee, decision numbered 2023/7 dated 06/04/2023.

Declaration of Author(s)' Contribution Rate: The author's contribution rate is 100%.

CONTRIBUTION RATE	CONTRIBUTORS
Idea or Notion	***Murat ÖZMADEN***
Literature Review	***Murat ÖZMADEN***
Yöntem	***Murat ÖZMADEN***
Data Collecting	***Murat ÖZMADEN***
Data Analysis	***Murat ÖZMADEN***
Findings	***Murat ÖZMADEN***
Discussion and Commentary	***Murat ÖZMADEN***

Funding: No contribution or support was received during the writing process of this study.

Informed Consent Statement: : Informed consent forms were obtained from all participants involved in the study.

Data Availability Statement: For questions regarding data sets, etc., the corresponding author should be contacted.

Conflict of Interest: There is no conflict of interest between the authors and other individuals, institutions or organizations related to the research.