

Mental Toughness and Motivational Climate of Basketball Players According to Gender and Age Groups

ZARİFE TAŞTAN¹¹Department of Sports Management, Esenyurt University, Turkey
Correspondence to: Zarife Taştan, Email: zariphe02@gmail.com

ABSTRACT

Background: It has been a matter of curiosity by athletes, coaches, sports commentators, and sports psychologists why certain athletes are the world's best in their field.

Aim: In our study, the mental toughness and motivational climates of licensed basketball players were examined according to age and gender variables.

Methods: In this study, the relational screening model was used to determine the relationship between mental toughness and motivational climate in licensed basketball players studying in physical education and sports teaching departments.

Results: As a result of this study, where mental toughness and motivational climate, which are known to be necessary to maintain the ideal performance level during competition, are evaluated according to age and gender variables, it is seen that the motivational climate and mental toughness scores do not differ according to the gender of the athletes.

Conclusion: As a result of this study, where mental toughness and motivational climate, which are known to be necessary to maintain the ideal performance level during competition, are evaluated according to age and gender variables, it is seen that the motivational climate and mental toughness scores do not differ according to the gender of the athletes.

Keywords: Mastery Climate, Performance Climate, Mental Toughness, Age, Gender

INTRODUCTION

It has been a matter of curiosity by athletes, coaches, sports commentators, and sports psychologists why certain athletes are the world's best in their field.¹ Despite having the right technique, the right exercises, the right meals and the right equipment, it has been stated that psychological factors are an important element that helps the athlete to perform better. When examined scientifically, the differences in the athlete's performance were found to be associated with mental toughness.² Mental toughness can be expressed as "developable positive psychological capacity" in order to recover and return to the old state in the face of some negativities encountered while performing performance.³ In other words; it is defined as "the degree of insensitivity towards criticism by playing badly or losing".⁴ Mental toughness is more than just mental. It is also physical and emotional.⁴ It has been stated that successful athletes are strong not only physically but also mentally.⁵ In order to be mentally strong on the field, it is necessary to be talented and to have the highest level of physical condition. Technical skills must be sharp.² Mentally strong individuals tend to be sociable and extroverted. Because they can remain calm and relaxed, they are competitive in many situations and have lower levels of anxiety than others. With a high sense of self-belief and an unwavering belief that they can control their own destiny, these individuals can remain relatively unaffected by competition or difficulties.⁶

Motivational climate, family and peers of the athlete, intrinsic motivation and sport-specific life experiences are important for the athlete's success in the long-term development of mental toughness.¹ This highlights the fact that developing mental toughness requires an appropriate motivational climate. Once mental toughness is developed, an internalized desire for success and motivation are needed to maintain this structure. Ames (1992)⁷ suggested that there are two motivational environments that can be applied to a sports context. These; are mastery and performance environments. If individuals are given time to perform a task, if effort is rewarded, if groupings are not based on abilities, mistakes are emphasized as part of learning, and success is evaluated in terms of personal development, the climate of mastery works.⁷ If there is a certain time to undertake a task, if superior performance is rewarded compared to others, if groupings are based on talent, if mistakes are punished, and success is evaluated in terms of outperforming others, the performance climate becomes operational.⁷

Motivational climate can help develop mental toughness when it rewards high effort in training or focuses on the preparation process rather than the results. Research on the motivational

climate in sports has suggested that the mastery motivational climate can encourage athletes to make a high level of effort.⁸ Sports psychology consultants can help coaches design a number of goals that reinforce consistent high effort levels during training. These changes can provide a motivational climate that increases mental toughness. Research on mental toughness has been largely limited to elite sports, but should theoretically be important in other performance areas.⁶ In our study, the mental toughness and motivational climates of licensed basketball players were examined according to age and gender variables.

MATERIAL AND METHODS

Research Model: In this study, the relational screening model was used to determine the relationship between mental toughness and motivational climate in licensed basketball players studying in physical education and sports teaching departments. Relational screening model are models that define the probability and degree of relationship between two or more variables.⁹

Participants of the Study: The universe of the study consists of licensed basketball players who study in physical education and sports teaching departments of universities in the 2019-2020 academic year. The sample of the study consists of 191 volunteer students (94 male, 97 female) selected by convenience sampling method from students studying

at five different universities. Convenience sampling is the sampling performed on (voluntary) individuals who are easily available, available in the immediate environment and want to participate in the study.¹⁰

Data Generation Process and Tools: The personal information form prepared by the researcher, the Sport Mental Toughness Questionnaire-SMTQ and Perceived Motivation Climate Questionnaire (PMCSQ) were used in the study. The validity and reliability information of the scales used by the researcher are presented under the titles of the scales.

Personal Information Form: The independent variables that are predicted to have an effect on the dependent variables were determined by scanning the literature by the researcher. In the form of personal information; Independent variables of gender, age range, class of education, school attended were included.

Perceived Motivation Climate Questionnaire (PMCSQ): Developed by Walling et al. (1993)¹¹, the scale consists of 21 items, 9 of which are Performance Climate, 12 of which are Mastery Climate. The adaptation study of the scale prepared in 5-point Likert type to Turkish culture was done by Toros¹². In the adaptation study, the Chronbach Alpha Internal Consistency Coefficient of the scale was determined as .84 for Mastery Climate

and .90 for Performance Climate. In our study, the internal consistency coefficients of the sub-dimensions are as follows; it is calculated as .89 for performance climate and .81 for mastership climate. The internal consistency coefficient for all items was calculated as .86.

Sport Mental Toughness Questionnaire-SMTQ: To determine the mental toughness of athletes, the Sport Mental Toughness Questionnaire-SMTQ¹³ was adapted to Turkish culture by Altıntaş and Koruç (2016)¹⁴. The 14-question inventory consists of 3 sub-dimensions: Confidence, Constancy and control. The inventory, which also provides information about total mental toughness, makes a 4-point Likert-type assessment (completely wrong, wrong, correct, completely correct). The scale also includes reverse questions. Cronbach's Alpha internal consistency coefficients belonging to the sub-dimensions of the scale, respectively; 0.84 for Confidence, 0.79 for Control, 0.51 for Constancy. Internal reliability coefficient for all items of the scale was calculated as .87. In our study, the internal consistency coefficients of Confidence, Control and Constancy sub-dimensions are respectively; It was calculated as .89, .81, .60. The internal consistency coefficient for all items was calculated as .88.

Analysis: During the data collection process of the research, an informed Volunteer Consent Form was received from the students before starting the application. The students were informed that they could stop the application at any time and that the research is voluntary. SPSS 25.0 program was used for descriptive statistics of the data and Mann Whitney U-Test calculations. As the first step in the analysis of the data, the data were prepared before data analysis. For this purpose, missing data analysis has been made, extreme values have been determined and the normality assumption of the data has been tested. In order to test whether the differences observed according to gender and age are statistically significant or not, Mann Whitney U-Test was applied.

RESULTS

The Mann-Whitney U-Test results, which were conducted to determine the relationship between mental toughness and motivational climate in licensed basketball players studying in physical education and sports teaching departments, by gender are given in Table 1.

Table 1. Mann Whitney U-Test Results of Scales According to Gender

	Group	n	Mean rank	Sumof Rank	U	z	p
Mastery Climate	male	94	95.04	8933.50	4468.500	-.238	.812
	female	97	96.93	9402.50			
Performance climate	male	94	90.06	8466.00	4001.000	-1.465	.143
	female	97	101.75	9870.00			
Confidence	male	94	97.20	9136.50	4446.500	-.297	.766
	female	97	94.84	9199.50			
Constancy	male	94	98.86	9292.50	4290.500	-.733	.463
	female	97	93.23	9043.50			
Control	male	94	102.98	9680.00	3903.000	-1.821	.069
	female	97	89.24	8656.00			

When the table is examined, there is no significant difference between the mastery climate, performance climate, Confidence, Constancy and control of the students according to gender, $p > .05$. Considering the mean rank, it is seen that there is no difference between male and female students.

The results of the Mann Whitney U-Test, which was conducted to determine the relationship between mental toughness and motivational climate in licensed basketball players studying in physical education and sports teaching departments, by age are given in Table 2.

Table 2: Mann Whitney U-Test Results of Scales According to Age

	Group	n	Mean rank	Sumof Rank	U	z	p
Mastery climate	Aged 21 and under	115	100.77	11588.50	3821.5	-1.555	.120
	Over the age of 21	76	88.78	6747.50			
Performance climate	Aged 21 and under	115	96.01	11041.50	4368.5	-.004	.997
	Over the age of 21	76	95.98	7294.50			
Confidence	Aged 21 and under	115	92.73	10664.00	3994.0	-1.014	.310
	Over the age of 21	76	100.95	7672.00			
Constancy	Aged 21 and under	115	103.01	11846.50	3563.5	-2.163	.031
	Over the age of 21	76	85.39	6489.50			
Control	Aged 21 and under	115	100.64	11574.00	3836.0	-1.433	.152
	Over the age of 21	76	88.97	6762.00			

When the table is examined, there is no significant difference between the mastery climate, performance climate, Confidence and control of the students according to age, $p > .05$. Considering the mean ranks, it is seen that there is no difference between the students aged 21 and under and over 21 years old. There is a significant difference between the constancy scores of students according to age, $p < .05$. Considering the mean ranks, it is seen that students aged 21 and under get higher scores than students over 21 years old.

DISCUSSION

When the literature is examined, there are studies that parallel to our research findings, mental toughness scores do not differ according to the gender of athletes.^{15,16,17,18,19,20,21,22} This situation is thought to be related to the similar reactions of all athletes under similar pressure and stress, regardless of gender. It is observed that athletes sometimes do not act in a healthy way as a result of

the decrease in their extroversion and the limitation of their social activities due to the pressure of the athletes in the Olympic games or similar tournaments that require long-term preparation. It is stated that the athlete should learn some coping strategies in order to relieve the stress and make the athlete feel ready.²³ In addition, the importance of mental toughness in athletes is emphasized in both cognitive and emotional strains and coping skills in training and competitions. There are also studies in the literature that conclude that male athletes have higher mental toughness than female athletes in terms of gender variable^{24,25,26,27,28,29} Juan and Lopez (2015)²⁸ also state that male athletes have higher levels of mental toughness compared to female athletes. In our study, the mean ranks of men in three of the mental toughness sub-dimensions of confidence, constancy and control are higher than that of women. However, this difference was not statistically significant. On the other hand significant differences between genders and mental toughness as different from this research have been identified in various studies.^{24,27,28,30,31,32,33,34} The differences

found in these studies can be attributed to the fact that society supports men more than women and the confidence that men start to do intense and hard sports at a younger age.

In the literature, there are studies that examine the motivational climate according to the gender variable. Differing from the findings of our study, gender-related differences were observed in the motivational climate.^{35,36,37,38,39,61,62} In our study, the reason why the motivational climate does not change according to gender can be considered to be the increase in lifelong skills, the high desire to practice, and the sense of satisfaction obtained from superiority from teammates and opponents, regardless of gender.^{40,63,64}

In the study, while there was no significant difference in mastery, performance, confidence and control sub-dimension scores by age groups, there was a significant difference in the constancy sub-dimension by age. Similar to our research findings, within the scope of a study examining the mental toughness in football players, it was reported that mental toughness did not differ according to age groups.^{19,20,21,41,42,43} When the literature is examined, there are also studies in which mental toughness differs according to age groups.^{5,6,16,22,24,25,30,31,34,45} Confidence; it is believing in abilities to achieve the goal in difficult situations that require struggle and thinking that it is better than the opponents. Control; it is the state of being calm, controlled and comfortable under pressure or in the face of unexpected situations.¹⁴ According to our research findings, the reason that confidence and control scores do not change according to age can be stated as the fact that athletes think that they are better than their rivals regardless of age in order to be successful in competitions and behave cold-blooded under pressure. Constancy; it is the state of taking responsibility, concentrating and struggling in line with the determined goals.¹⁴ Considering the findings, it can be said that as the athletes get older, they do not avoid taking responsibility and struggle as a result of the experiences they have gained from the competitions they participate.

In our study, it is seen that motivational climate sub-dimension scores do not differ according to age. It can be said that this is due to the small difference between the ages of the athletes participating in our research. In parallel with our findings, in a study examining basketball players' perceived motivational climate scores according to age variable, no statistically significant difference was found in sub-dimension scores by age. It is thought that the meaning they attribute to the motivational climate in a sports environment where young basketball players and older basketball players are together is not affected by the ages of the athletes.³⁹ Our findings are also in line with other studies linking the development of motivational climate with mental toughness.^{46,47,48,49,50,51,52,53,54,55,56,57,58,59,60}

CONCLUSION

As a result of this study, where mental toughness and motivational climate, which are known to be necessary to maintain the ideal performance level during competition, are evaluated according to age and gender variables, it is seen that the motivational climate and mental toughness scores do not differ according to the gender of the athletes.

Suggestions: The motivational climate and mental toughness scores of the athletes participating in the study were analyzed according to gender and age groups. Although different definitions are made on the mental toughness required for the athlete to maintain his high performance, the common view on the concept is that it is an important psychological feature for successful performance. For this reason, it is thought that it will be useful to use other psychological variables that affect the success of the athlete in future studies.

REFERENCES

1. Connaughton, D., Sheldon, H., Graham, J., Ross, W. (2008). Mental toughness research: Key issues in this area. *International Journal of Sport Psychology* 39(3):192-204.

2. Liew, G.C., Kuan, G., Chin, N.S. And Hashim, H. A (2019). Mental toughness in sport Systematic review and future. *Ger J Exerc Sport Res.* 49:381–394. <https://doi.org/10.1007/s12662-019-00603-3>
3. Luthans, F., (2002). Positive organizational behavior: Developing and managing psychological strengths. *The Academy of Management Executive*, 16(1), 57-72.
4. Alderman, R.B. (1974). *Psychological behavior in sport*. Toronto: W.B. Saunders Company.
5. Connaughton, D., Wadey, R., Hanton, S., Jones, G. (2008). The development and maintenance of mental toughness: Perceptions of elite performers. *Journal of Sports Sciences*, 26: 83-95.
6. Crust, L., Earle, K., Perry, J., Earle, F., Clough, A., And Clough, P. J. (2014). Mental toughness in higher education: Relationships with achievement and progression in first-year university sports students. *Personality and Individual Differences*, 69, 87- 91.
7. Ames, C. (1992). Achievement goals motivational climate, and motivational processes. In Roberts, G. C. (Eds.), *Motivation in Sport and Exercise* (pp.161-176). Champaign, Illinois: Human Kinetics.
8. Smith, R.E. (2006). Positive reinforcement, performance feedback, and performance enhancement. In j.w. Williams (ed.), *applied sport psychology: personal growth to peak performance*(pp. 40–56). dubuque, ia: mcgraw-hill.
9. Fraenkel, J. R., Wallen, N. E., Hyun, H. H. (2012). *How to design and evaluate research in education*. USA: McGraw-Hill.
10. Erkus, A. (2011). *Scientific research process for behavioral sciences* (3rd Edition). Ankara: Seckin Publishing
11. Walling, M. D, Duda, J.L. And Chi Likatig (1993). The perceived motivational climate in sport questionnaire: construct and predictive validity. *Journal Of Sport & Exercise Psychology* S. 172-183.
12. Toros, T. (2001). Effects of goal orientation, motivational climate, the degree of difficulty and properties of goal to life satisfaction in elite and non-elite male basketball players (Unpublished master's thesis). Mersin University, Mersin.
13. 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.
14. Altıntaş, A., Koruc, P. (2016). Examining psychometric properties of the sport mental toughness questionnaire-(SMTQ). *Hacettepe Journal of Sport Sciences* 27 (4), 162–171.
15. Clough, P., Earle, K., And Sewell, D. (2002). Mental toughness: The concept and its measurement. *Solutions in sport psychology*, 32-45.
16. Cowden, R. G., Meyer-Weitz, A. (2016). Mental toughness in South African competitive tennis: Biographical and sport participation differences. *International Journal of Sport and Exercise Psychology*, 14 (2), 152-167. doi: 10.1080/1612197X.2015.1121509.
17. Crust, L. (2009). The relationship between mental toughness and affect intensity. *Personality and Individual Differences*, 47(8), 959-963.
18. Dede, Y.E. (2019). Investigation of the mental toughness of elite wrestlers (Master's Thesis). Aydın Adnan Menderes University Institute of Health Sciences, Aydın.
19. Guvendi, B , CAN, H , TURKSOY ISIM, A . (2020). Examination of the Relationship Between Mental Toughness and Decision-Making Styles in Triathletes. *International Journal of Current Educational Research*, 6 (1) , 146-160.
20. Sahinler, Y., Ersoy, A., (2015). Investigation of mental strengths of sportsmen by different variables. *International Journal of Social Sciences and Education Research*, 5(2), 168-177. <https://doi.org/10.24289/ijsser.558658>.
21. Turkoglu, F. (2019). Investigation of taekwondo athlete's mental endurance. *Firat University, Institute of Health Sciences, Department of Physical Education and Sports, Elazığ*.
22. Yıldız, A.B. (2017). Determination of relation between the mental toughness and of the self- efficacy levels of athletes'. Master of Science Thesis, Health Sciences Institute, Ankara Yıldırım Beyazıt University.
23. Kuruç, Z., Bayar, P. (2006). 'Olimpik Hazırlıklar ve Spor Psikolojisi' *Spor Bilimleri Dergisi*. 17(1), 26-37
24. Yarıyan, Y. E., Yıldız, A. B., Gulsen, D. B. (2018). Examination of mental toughness levels of individual and team sports players at elite level according to various variables. *The Journal of International Social Research*, 11(57), 992-999. <http://dx.doi.org/10.17719/ijssr.2018.2509>.
25. Nicholls, A. R., Polman, R., Levy, A., And Backhouse, S. H. (2009). Mental toughness in sport: Achievement level, gender, age, experience and sport type differences. *Personality and Individual Differences*, 47, 73–75.
26. Findlay, L. C. And Bowker, A. (2009). The link between competitive sport participation and self-concept in early adolescence: A

- consideration of gender and sport orientation. *Journal of youth and adolescence*, 38(1), 29-40. Issn: 1307-9581.
27. Masum, R. (2014). A mixed method analysis of mental toughness in elite and sub-elite male and female tennis players in Pakistan. *Advances in Social Sciences Research Journal*, 1,110-122.
 28. Juan, M. V. T., Lopez, A. (2015). Mental toughness of scholar athletes. *Researchers World*, 6(3), 22.,
 29. Vealey, R. S., (1988). Sport-confidence and competitive orientation: An addendum on scoring procedures and gender differences. *Journal of Sport and Exercise Psychology*, 10(4), 471-478.
 30. Nicholls, A.R., Polman, R.C., Levy, A.R., Backhouse, S.H. (2008). Mental toughness in sport: Achievement level, gender, age, experience, and sport type differences. *Personality and Individual Differences*, 47(1), 73-75.
 31. Onan, M. (2017). Examination of the relationship between the self-esteem of the professional footballers; pre- and post-performance evaluations, mental toughness and the relationships between task and ego orientation in sport (Master Thesis). Uskudar University Institute of Social Sciences, Istanbul.
 32. Orhan, S. (2018). The relationship of emotional intelligence and mental toughness in individual and team athletes (Master Thesis). Marmara University Institute of Health Sciences, Istanbul.
 33. Cetin, S. (2019). Mental Toughness, Attachment Style and Cognitive Emotion Regulation: A Study on Athletes with and without Physical Disabilities (Master's thesis). Ege University Institute of Health Sciences, Izmir.
 34. Harmanci, F. (2019). Mental toughness in sports a research on cycling athletes(Master Thesis). Selcuk University Institute of Health Sciences, Konya.
 35. Morgan, K., Sproule, J., Weigand, D., And Carpenter, P. (2005). A computer-based observational assessment of the teaching behaviours that influence motivational climate in physical education. *Physical Education & Sport Pedagogy*, 10(1), 83-105. <https://doi.org/10.1080/1740898042000334926>.
 36. Miller, B. W., Roberts, G. C., And Ommundsen, Y. (2004). Effect of motivational climate on sportspersonship among competitive youth male and female football players. *Scandinavian Journal of Medicine & Science in Sports*, 14(3), 193-202. DOI:10.1046/j.1600-0838.2003.00320.x
 37. Agbuga B.(2014). Turkish students' opinions about their perceived motivational climate and effort/persistence in physical education. *Education and Science*, Vol 39, No 175, 95-107.
 38. Cunningham, G. B.,& Xiang, P. (2008). Testing the mediating role of perceived motivational climate in the relationship between achievement goals and satisfaction: Are these relationships invariant across sex? *Journal of Teaching in Physical Education*, 27(2), 192–204. <https://doi.org/10.1123/jtpe.27.2.192>
 39. Yıldız, S. (2018). Examination university super league basketball players' goal orientation and perceived motivational climate (Master Thesis). Mersin University Institute of Educational Sciences Department of Physical Education and Sports, Mersin.
 40. Sage, L., Kavussanu, M. (2007). The effects of goal involvement on moral behavior in an experimentally manipulated competitive setting. *Journal of Sport and Exercise Psychology*, 29(2), 190-207.
 41. Ucar, U., Kaplan, T. (2020). Examining the mental toughness of the amateur football players in Konya. *Physical Education and Sports Sciences Journal* 14(2): 145-157. <https://dergipark.org.tr/en/download/article-file/1184757>
 42. Kurtay, M., (2018). The aim of this research is to review the mental toughness levels of the football players in development leagues(Master's thesis), Akdeniz University Institute of Health Sciences. Antalya.
 43. Demirtekkursun, G., Namli, S., Hazar, Z., Turkeli, A., Cicioglu, I. (2018). The relationship between motivation for physical activity participation and motivation for digital gaming. *Celal Bayar University Journal of Physical Education and Sport Sciences*, 13(1),176-191.
 44. Marchant, D. C., Polman, R. C., Clough, P. J., Jackson, J. G., Levy, A. R. And Nicholls, A. R. (2009). Mental toughness: Managerial and age differences. *Journal of Managerial Psychology*, 24(5), 428-437.
 45. Nicholls, A.R., Levy, A.R., Polman, R.C., Crust, L. (2011). Mental toughness, coping selfefficacy, and coping effectiveness among athletes. *International Journal of Sport Psychology*.
 46. Toros, T. (2002). Goal Orientation, Motivational Climate and Life Satisfaction Among Elite Non-Elite Male Basketball Players In Turkey. *Journal of Sport Sciences*. 13(3), 24-36.
 47. Toros, T. (2004). Reliability and Validity of "Task and Ego Orientation In Sport Questionnaire-TEOSQ-"For Turkish Athletes. *Journal of Sport Sciences*.15(3), 155-166.
 48. Toros, T. (2005). The Relationship of Playing Time To Goal Perspective Orientation, Life Satisfaction and Perceived Motivational Climate In Young Male Basketball Players. *Journal of Sport Sciences*. 16(2), 50-63.
 49. Toros, T., & Koruç, Z. (2005). The Relationship Between Goal Orientation and Perceived Motivational Climate Among High School Volleyball Players In Turkey. *Journal of Sport Sciences*. 16(3), 135-145.
 50. Toros, T., Akyüz, U., Bayansalduz, M., & Soyer, F. (2010). Examining the Relationship Between Task-and Ego-oriented Goals and Life Satisfaction (A Study of People Doing Mountaineering Sports), *Journal of International Human Sciences*. 7(2), 1039-1050.
 51. Toros, T. (2010). The relationship between perceived coaching behaviors, goal orientation, team cohesion, perceived motivational climate ve collective efficacy among basketball players before and after the tournament. *Journal of Human Sciences*, 7(2), 1118-1142.
 52. Toros, T., & Duvan, A. (2011). Relationship Between Perceived Coaching Behaviors Collective Efficacy and Goal Orientation Among Fencer Players in Turkey. *Nigde University Journal of Physical Education And Sport Sciences*. 5(1), 33-41.
 53. Toros, T. (2011). Analysis the differentiation between perceived coaching behaviors, goal orientation, team cohesion, perceived motivational climate ve collective efficacy among the young male basketball players before and after the tournament. *Pamukkale Journal of Sport Sciences*. 2(1), 39-39.
 54. Toros, T., Salman, M., & Sari, İ. (2013). The comparison of sports coaches' pre-season, in-season and post-season leadership behaviours in terms of sport psychology. *Journal of Human Sciences*, 10(1), 237-245.
 55. Toros, T. (2011). Training exercise performance questionnaire (TEPQ)-development study. A study on sportsmen from branches of Judo, Taekwondo, Karate. *Archives of Budo*, 7(2), 81-86.
 56. Isim, M, A. T., Güvendi, B., & Toros, T. (2015). Amateur league footballers moral disengagement in sport, motivational climate and decision-making. *International Journal of Social Sciences and Education Research*, 5(1), 54-62.
 57. Toros, T., Kesilmiş, İ., & Başhan, İ. (2018). Relationship between self-efficacy and life satisfaction according to exercise participation in obese female university students. *Journal of Human Sciences*, 15(4), 1847-1853.
 58. Toros, T. (2018). Burnout Levels of Handball Players with Respect to Age, Gender and Experience. *Asian Journal of Education and Training*, 4(1), 29-34.
 59. Toros, T. (2018). Effect of Verbal Feedback in Twelve Weeks Handball Training on Self-Efficacy and Life Satisfaction. *Asian Journal of Education and Training*, 4(1), 13-17.
 60. Kesilimis, İ., Taştan, Z., Toros,T.(2020). Comparison of Perceived Motivational Climate and Positive Feedback of Football Players According to Positions. *Journal of Sports Education*. 4(1), 115-122.
 61. İlkim M. Çelik T., Mergan B.(2021) Investigation of Sports Management Students' Perceptions and Attitudes towards the COVID-19 Pandemic, *Pakistan Journal Of Medical & Health Sciences*, Volume15 Issue 2 Page799-803,
 62. Karaca Y., İlkim M.(2021), Investigation Of The Attitudes Distance Education Of The Faculty Of Sport Science Students In The Covid-19 Period, *Turkish Online Journal Of Distance Education* Volume22, Issue 4, Page114-129,
 63. Özşarı A.,İlkim M.(2021) Investigation of the spiritual intelligence features of physically handicapped badminton players in terms of various variables, *International Journal Of Life Science And Pharma Research* , Pp.29-35
 64. Özdemir M.,Tanır H., İlkim M.Özmaden M.(2017). The effects of 8 week exercise program on reaction time performance of hearing impaired students at 11-14 years of age, *SHS Web of Conferences*, Volume 37