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

ZARİYE TAŞTAN
Department 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. 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. 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.

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

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. 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. 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.

In other words, it is defined as “the degree of insensitivity towards criticism by playing badly or losing”. Mental toughness is more than just mental. It is also physical and emotional. It has been stated that successful athletes are strong not only physically but also mentally. 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. 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.

Mastery 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. 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) 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. 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.

Mastery 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. 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.

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.

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.

Data Generation Process and Tools: The personal information form prepared by the researcher, the Sport Mental Toughness Questionnaire-SMTQand 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), 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 Toros. 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-SMTQ was adapted to Turkish culture by Altıntaş and Koruc (2016) [16,17,18,19,20,21,22]. 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.

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

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean rank</th>
<th>Sumof Rank</th>
<th>U</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery Climate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>94</td>
<td>95.04</td>
<td>8933.50</td>
<td>4688.50</td>
<td>-2.28</td>
<td>.012</td>
</tr>
<tr>
<td>female</td>
<td>97</td>
<td>96.93</td>
<td>9402.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance climate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>94</td>
<td>90.06</td>
<td>8466.00</td>
<td>4001.00</td>
<td>-1.465</td>
<td>.143</td>
</tr>
<tr>
<td>female</td>
<td>97</td>
<td>101.73</td>
<td>9870.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>94</td>
<td>97.20</td>
<td>9136.50</td>
<td>4446.50</td>
<td>-2.97</td>
<td>.003</td>
</tr>
<tr>
<td>female</td>
<td>97</td>
<td>94.84</td>
<td>9199.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>94</td>
<td>98.86</td>
<td>9292.50</td>
<td>4290.50</td>
<td>-1.73</td>
<td>.043</td>
</tr>
<tr>
<td>female</td>
<td>97</td>
<td>93.23</td>
<td>9043.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>94</td>
<td>102.98</td>
<td>9680.00</td>
<td>3903.00</td>
<td>-1.821</td>
<td>.069</td>
</tr>
<tr>
<td>female</td>
<td>97</td>
<td>89.24</td>
<td>8656.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean rank</th>
<th>Sumof Rank</th>
<th>U</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery Climate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged 21 and under</td>
<td>115</td>
<td>100.77</td>
<td>11588.50</td>
<td>3821.5</td>
<td>-1.555</td>
<td>.120</td>
</tr>
<tr>
<td>Over the age of 21</td>
<td>76</td>
<td>88.78</td>
<td>6747.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance climate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged 21 and under</td>
<td>115</td>
<td>96.01</td>
<td>10141.50</td>
<td>4368.5</td>
<td>-0.04</td>
<td>.997</td>
</tr>
<tr>
<td>Over the age of 21</td>
<td>76</td>
<td>95.98</td>
<td>7294.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged 21 and under</td>
<td>115</td>
<td>92.73</td>
<td>10664.00</td>
<td>3994.0</td>
<td>-1.014</td>
<td>.310</td>
</tr>
<tr>
<td>Over the age of 21</td>
<td>76</td>
<td>100.95</td>
<td>7672.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged 21 and under</td>
<td>115</td>
<td>103.01</td>
<td>11848.50</td>
<td>3563.5</td>
<td>-2.163</td>
<td>.031</td>
</tr>
<tr>
<td>Over the age of 21</td>
<td>76</td>
<td>85.39</td>
<td>6489.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged 21 and under</td>
<td>115</td>
<td>100.64</td>
<td>11574.00</td>
<td>3836.0</td>
<td>-1.433</td>
<td>.152</td>
</tr>
<tr>
<td>Over the age of 21</td>
<td>76</td>
<td>88.97</td>
<td>6762.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 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 [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 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. 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 [24,25,26,27,28,29,30]. Juan and Lopez (2015) [25,26,27,28,29,30] 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

**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.
found in these studies can be attributed to the fact that society supports men more than women and the confidence that men start to develop intense 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. In our study, the reason why the motivational climate does not change according to gender can be considered to be the increase in life 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 is the sense of being in control and determined to compete 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 on line without changing 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.14 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
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.
62. Karaca Y., İlkım M. (2021), Investigation Of The Distances 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.
64. Özdemir M., Tanır H., İlkım 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