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Investigation of the Mental Endurance Levels of the Athletes Participating in the Table Tennis Championship of Universities in Turkey

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Abstract

The purpose of this study was to investigate the mental endurance of the athletes who participated in the table tennis championship inter Universities in Turkey. To investigate the mental endurance of the athletes who participated in the study, the mental endurance rubric whose validity and reliability work has been done by Erdoğan (2016) was used. Also, some questions including some personal data of the subjects were also included in the inventory. For statistical tests, The Saphiro-Wilks test was performed to determine if the data had a normal distribution. Due to data not having a normal range, non-parametric tests such as Mann-Whitney U test and Kruskal-Wallis test were applied. According to the results of the analysis, it has been seen that there is no meaningful difference between the mental endurance score of the athletes based on categories such as; age, sex, playing sports year, and playing sports under a license. Results showed that the male athletes ($57,79 \pm 6,676$) have a higher average of mental endurance compared to female athletes ($46,82 \pm 6,525$), the athletes with higher playing sports year, 13-15 years, ($50,87 \pm 6,329$) compared to lower playing sports years, 7-9 years, ($57,13 \pm 7,731$) have a lower average of mental endurance, athletes who play in the unileage ($56,18 \pm 7,795$) have a higher average of mental endurance compared to the athletes who play in 1.,2.,3. Leagues ($51,48 \pm 5,714$) and athletes who play in other leagues or athletes who don't play in any leagues ($50,98 \pm 4,415$) and athletes aged 21-23 ($54,88 \pm 7,142$) has a higher average of mental endurance compared to ages 18-20 ($53,38 \pm 6,260$), ages 24-26 ($53,06 \pm 6,752$).

Keywords: sport, table tennis, mental toughness

Introduction

The purpose of this study was to investigate the mental endurance of the athletes who participated in the table tennis championship inter universities in Turkey. For many times, we have seen that athletes attribute their bad performances to a loss of concentration, getting nervous under pressure or the mental aspect of the games.

Another mistake both trainers and athletes do is the attempt to try to fix their mistakes by increasing their training. But mostly the problem is not caused by the lack of physical skills but by a lack of mental skills (Weinberg and Gould, 2015). Being mentally strong and displaying a perfect performance is not hereditary but something that can be learned (Loehr and James, 1986).

Loehr and James (1986) emphasizes that whether the person is outgoing or shy, displaying a perfect performance is based on some psychological and mental elements and these can be learned with any skills. On the other hand, athletes failing to improve themselves mentally and emotionally, ignoring the development of their psychological skills might affect the physical performance they once thought was unique in a bad way and hence resulting in failure. Moreover, many athletes spare little time for their mental preparation training or avoids the training completely (Ercan, 2013).

The Psychological Skills Training (PST), is the systematic and reliable training of psychological and mental skills. The aim of improving the performance, increasing the joy in participation to sports or the satisfaction that is caused by participation in sports or physical activities (Weinberg and Gould, 2015).

When various studies and publications are examined, it can be seen that there are several misunderstandings towards psychological skills training. These misunderstandings are as follows: PST is only for the problematic athletes or high-level trainings, and PST provides an easy way out and not necessarily beneficial. The concept of mental toughness has been defined in various ways in the literature. Some of these definitions are;

According to Jones and others (2002), mental toughness is defined as being more consistent and having a better performance than their opponents; being determined, focused, and confident and being able to sustain control when under pressure. Clough et al. (2002) has defined mental toughness as “having an impenetrable faith of controlling a person’s fate.”

Mental toughness is a cognitive skill that allows the athletes to deal with difficulties that may come up during their performances, and enables them to control their motivation, concentration, confidence, feelings and thoughts and sustain them in a positive direction (Weinberg et al. 2011). When physical skills are equal, the winner is mostly the sportsman with a higher level of mental toughness. Nonetheless many serious athletes spare 10-20 hours (or more) to their physical training, they spare so little time (if there’s left any) to their mental toughness training. This ratio doesn’t mean anything. It should not be forgotten that psychological elements are the main reasons of daily ups and downs of the performance (Weinberg & Gould, 2015: 247-248).

With this purpose on mind, measuring mental toughness is a very important factor in order to evaluate and improve psychological performance (Durand-Bush & Salmela, 2002). Since there’s 11 points to every set in table tennis, every point is crucial to win the game. It is believed that the athletes’s mental toughness level will affect their performances in a game where attention and focus is very important. There are some studies that investigates the

relationship between the psychological parameters and mental toughness along with their validity and reliability.

In this study, the mental toughness level between athletes, who competed in Turkey Table Tennis Championship among universities, will be researched based on some variables.

With this aim in mind, the following hypotheses will be examined:

H1: There is no difference between the score of athletes's mental toughness based on sex

H1: There is no difference between the score of athletes's mental toughness based on age

H3: There is no difference between the score of athletes's mental toughness based on their sports experience

H4: There is no difference between the score of athletes's mental toughness based on their category doing licensed sport.

Materials and Method

This study has been conducted with the method of scanning in the frame of quantitative research approach. The athletes who competed in Turkish Inter-Universities Table Tennis Championship in 2016-2017 season of the table tennis federation constituted the sample group of the study. The number of athletes out of the 313 athletes which constituted the research's sample group who volunteered to participate in the survey activity and filled out the surveys completely was 107. Firstly, the athletes were informed about the purpose of the study. In this context, every sportsman filled out a survey an hour before the competition.

MTR (Mental Toughness Inventory) has been developed by Madrigal, Hamill and Gill in 2013. MTR is a 5 Likert scaled inventory containing (1) I don't agree at all (2) I disagree (3) I'm indecisive (4) I agree (5) I agree completely.

While the inventory has been developed, the sample group had consisted of 87 males and 184 females out of 271 amateur and professional athletes and not all of them were students. When forming the inventory's item pool Jones et. al.'s study (2007) had been used as a base. Jones et. al had tackled with Mental Toughness in four aspects: "attitude", "training", "competition" and "post-competition".

This study which is conducted via using the mental toughness inventory has been applied to athletes before competitions along with a personal data inventory. They have gathered an 11 itemed, one-element constitution which includes the training and competition after Exploratory Factor Analysis (EFA). The translation and Turkish adaption was done by Erdogan (2016) which was applied to the sample in this study.

To designate the general aspects of the data, definitive statistics, cross tabulation frequency and percentage distribution has been conducted. Out of the normalcy tests, the Kolmogorov-Smirnov (K-S) test and Shapiro-Wilk test has been applied as part of the statistics tests based on athletes age, gender, doing sports experience and licensed category. Due to data not having a balanced distribution, the non-parametric tests such as Mann-Whitney U test and Kruskal-Wallis test has been applied.

Findings

General Features:

In Graphics 1-4, various information is given regarding the athletes who participated in the survey.

Age

39.2% (n=42) of the athletes, in age of 18-20, 44.9% (n=48) of the athletes, in age of 21-23, 15.9% (n=17) of the athletes, in age of 24-26, were participated in the study.

Gender

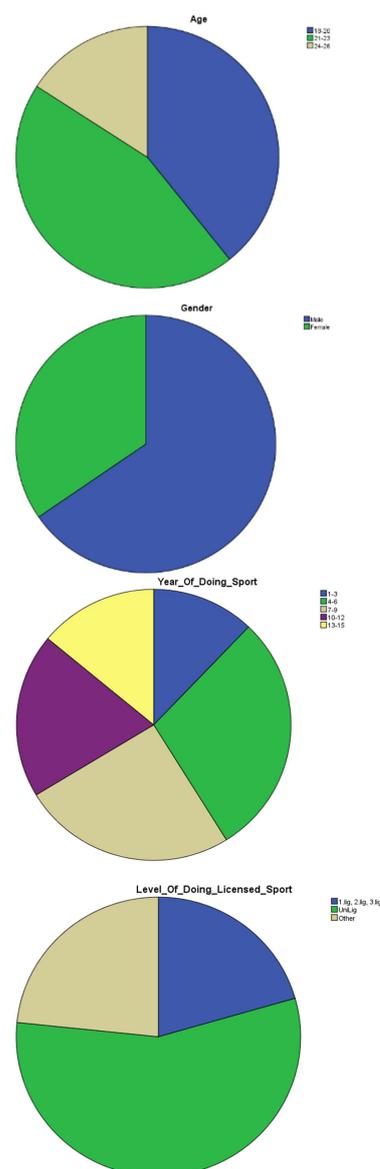
65.9% (n=70) of the athletes were Male, 34.6% (n=37) of the athletes were Female

Year of Doing Sport

12.1% (n=13) of the athletes, in 1-3 Years, 29.0% (n=31) of the athletes, in 4-6 Years, 25.2% (n=27) of the athletes, in 7-9 Years, 19.6% (n=21) of the athletes, in 10-12 Years, 14.0% (n=15) of the athletes, in 13-15 Years, were participated in the study.

Licensed Category

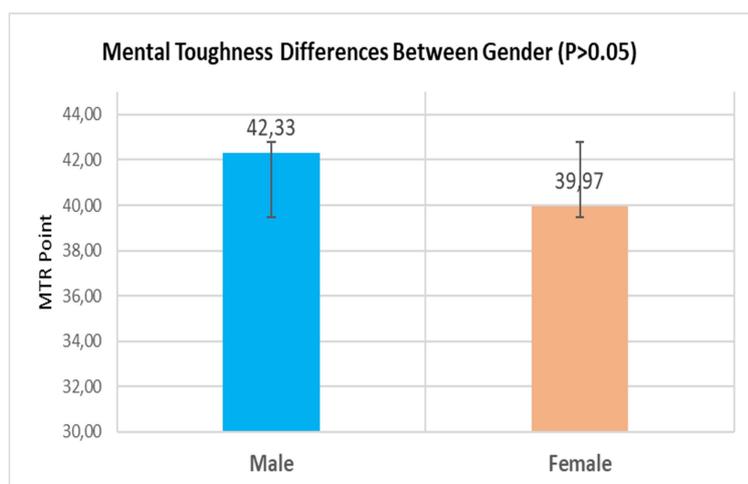
20.6% (n=22) of the athletes, in 1.,2.,3. Leagues, 56.1% (n=60) of the athletes, in University Leagues, 23.4% (n=25) of the athletes, in Other leagues, were participated in the study.



General Findings

Gender: To find out significant differences between gender a Mann Whitney-U test were performed ($\alpha=0.05$). It has been seen clearly that the difference between the mental toughness score of athletes based on gender is not meaningful ($U=1029.5$, $p<0.05$).

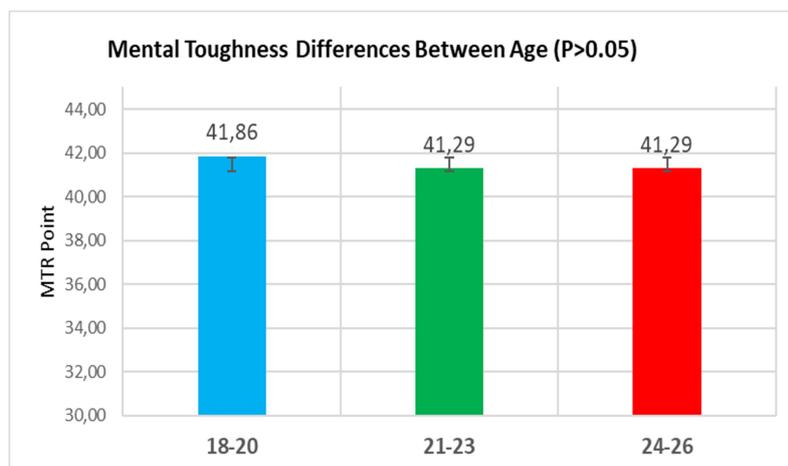
It has been discovered that the male athletes (42.33 ± 6.67) have higher mental toughness score than female athletes (39.97 ± 6.52). But this difference does not make a difference statistically. It is possible to assume that the male athletes in our sample group are superior to female athletes in terms of recovering quickly during competition, dealing with pressure and hardships and confidence (Graphic 5).



Graphic 5. Mental Toughness between Gender

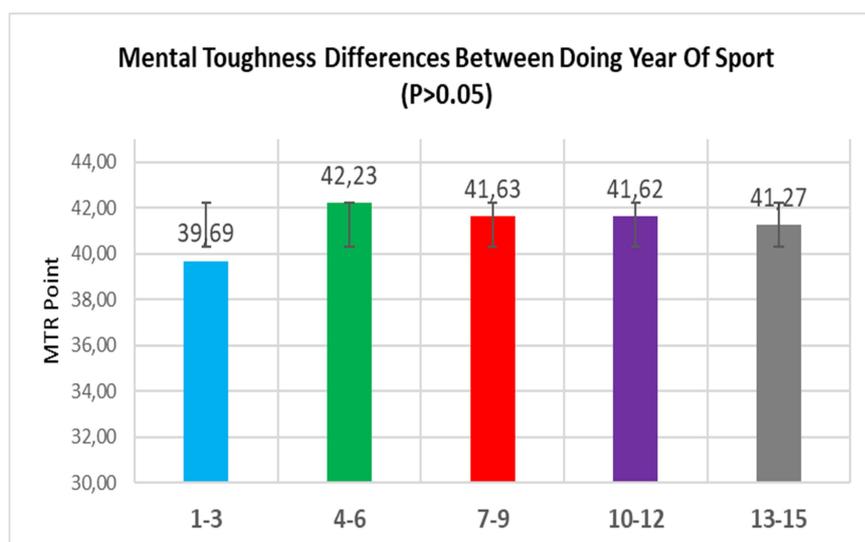
Age: To find out significant differences between ages a Kruskal Wallis test were performed ($\alpha=0.05$). The results showed that age does not make any difference on the averages of mental toughness scores $X^2(2) = 0.71, p = >0.05$

The athletes of age 18-20 (41.86 ± 6.26) have higher scores of mental toughness compared to the athletes of age 21-23 (41.29 ± 7.14) and age 24-26 ($41.29 \pm 6,75$). This result can be interpreted as the age increase in athletes does not form a meaningful difference on the level of mental toughness between athletes (Graphic 6).



Graphic 6. Mental Toughness between Age

Sport experience: To find out significant differences between sport experience a Kruskal Wallis test were performed ($\alpha=0.05$). The results show that there is no meaningful difference based on the difference of mental toughness score of athletes according to their doing sports experience $X^2(4) = 0.89, p = >0.05$. The results showed that athletes, with 4-6 years experiences ($42.23 \pm 6,49$), have higher mental toughness score than doing sports experience, such as 1-3 years (39.69 ± 8.64), 7-9 years (41.62 ± 7.73), 10-12 years (41.62 ± 4.49) an 13-15 years (41.51 ± 6.69).



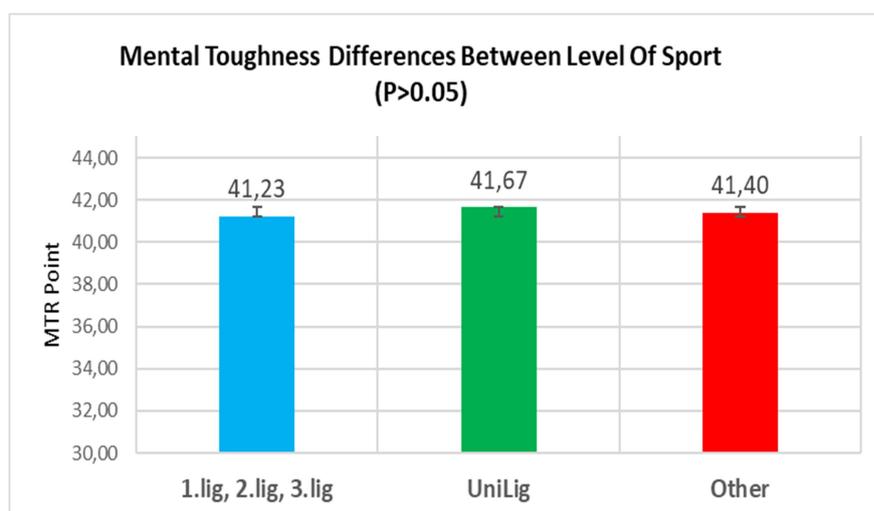
Graphic 7. Mental Toughness between Sport Experiences

Doing Licensed Sport: To find out significant differences between doing licensed sport a Kruskal Wallis test were performed ($\alpha=0.05$).

The results show that there is no meaningful difference based on the difference of mental toughness score of athletes according to their doing licensed sport $X^2(2) = 0.68, p = >0.05$

The results showed that athletes in University Lig (41.67 ± 7.79), have higher mental toughness score than 1st, 2nd, and 3rd leagues (41.23 ± 5.71) and others (41.40 ± 4.42).

In contrast of our findings, it was seen that most studies shows the differences between various parameters of mental toughness (Graphic 8).



Graphic 8. Mental Toughness between Doing Licensed Sport

Discussion

There aren't many studies that investigated the relationship between mental toughness and other parameters. Therefore, the aim of this study is to infill the gap in the literature. There are

some studies which are about the factors that play a role in the mental toughness and about the relationship between validity, reliability and mental toughness. Gucciardi and Daniel (2010) has proven that the athletes with high instinct relatedly have a high mental toughness level on a study he conducted on 214 Austrian footballers.

Crust and Swann (2011) exhibited that there is a positive correlation between general mental toughness and dispositional flow as a result of their study on 135 people whose age average was 20. Altıntaş (2015) has investigated the role of target path, triggering level and dispositional flow in defining the toughness of different athletes by testing the reliability and validity of The Inventory of Mental Toughness in Sports in Turkish population on his doctoral thesis. Consequently, a meaningful difference between the score of athletes's mental toughness based on age, sex, doing sports experience and licensed category could not be found.

The importance of mental skills can be seen in recently discovered Mental Toughness' features. With psychological skills training, the constitution and development of these skills can be achieved. In this context, when every set of Table Tennis includes 11 points and each of those points are crucial; the mental toughness level of the athletes could be increased by adding more psychological skills training into the Table Tennis training programmes.

The training programmes which emphasizes the importance of skills development, that athletes could taring in joy, emphasizes the importance of the performance and rewards it, could be established in order to increase the mental toughness of the athletes. Within the scope of future studies, a similar study could be conducted on athletes competing in different fields. Also, the study could be conducted on athletes who deal with team sports and the results of that study can be compared with this one. Along with that, the study could be repeated with a bigger sample group which includes wider socio-economic parameters.

Conflicts of Interest

The authors have no conflicts of interest to acknowledge.

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