



## Mental Toughness of Students: Levels of Hockey Players Mental Toughness of the Athletes

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### Abstract

This study was carried out to determine the mental toughness levels of the female student athletes who participated in the hockey super league competitions held in Konya. The Study group consisted of a total of 122 female student athletes (age =  $18.39 \pm 2.88$ ) who participated in hockey super league competitions. To determine the mental toughness levels of athletes, the Mental Toughness Inventory at Sports developed by Sheard *et al.* (2009) was used. Histogram technique was used to test whether the data showed normal distribution. And at the end of this, all sub-dimensions of mental resilience scale were found to have normal distribution. According to this, t test and One-Way Anova tests were used to determine the main differences and tukey test was used to find the difference between the two sets of variables. As a result; the athletes participating in the study were found to be strong and durable. It was concluded that there was a meaningful relationship between mental toughness levels and age and also difficulty in leisure time variables.

**Keywords:** Mental toughness, Sports, Hockey, Female, Athlete, Student.

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## 1. Introduction

In recent years, with the increase in the competition at sports, athletes are trying to strengthen themselves psychologically and physically. In this case, it is seen that not only the physical strength is sufficient but also the psychological factors (Moralı and Tiryaki, 1990). As the number of researches examining the relationship between athletes' psychological competence and performance increased, sporting activities gained a different dimension and in all sporting activities, it was determined that there were psychological elements such as intelligence, memory, judgment, attention, comparison, interpretation, will, and anxiety under mental activities and played an important role (Erbaş, 2005). Many successful athletes experienced problems such as not being confident in their performance, lack of confidence and concentration, or stress and competition anxiety. It may be normal for such problems to be short-lived and too few to affect the athlete's performance, but long-term problems can adversely affect the athlete's performance (Ercan, 2013). Performance in sport is defined as the physiological, motoric, biomechanical and psychological efficiency of the athlete during exercise. For a superior performance, both the physiological and psychological characteristics of the athlete must be developed and should be increased to the upper levels (Konter, 2003). Improvements and differences in physical skills and abilities can have a positive or negative impact on competition results. However, in most competitions, the winners' win or loss depends on their performance. In case of equality of physical skills and abilities of athletes, athletes with higher mental skills are generally more successful than others (Weinberg and Gould, 2015).

Human is a biological, psychological, and social entity. Human beings are all with the way of Cognitive, affective, physical and social aspects. The sporting skills and abilities put forward by the people can be brought to a certain level with the combination of these essential elements and the planning, implementation and implementation of the needed works (Erdoğan and Kocaekşi, 2015).

For this reason, it can be said that psychological and mental phenomena are important factors that reveal the difference between athletes with physiological, motoric, technical and tactical characteristics. During the season, the athlete's mental performance may play an influential role on his or her team's success in the field. The decrease in the performances of the athletes in the field as a result of the competition intensity of the teams, reveals that the need for the psychological competence of the athletes is gradually increasing. Athletes are adversely affected physically and psychologically due to high training, displacement journeys and intensive match programs, and therefore their performance declines. Recently, sports psychologists have been working intensively to increase the performance of athletes. Some coaches, trainers and athletes have not been able to fulfill the requirements of sports psychology and have been left behind by their competitors (Altıntaş and Akalan, 2008). One of the most frequently used but least understood topics in sports psychology is mental resilience (Graham *et al.*, 2002). Mental toughness is generally defined as a natural or developed psychological factor that allows athletes to cope with their rivals in situations such as training and competition, in the light of their mental competences (Jones *et al.*, 2007). According to another definition, mental toughness; a negative situation such as failure, conflict and intensive responsibility is expressed as a positive psychological capacity that can be developed in order to achieve motivation and old performance (Luthans, 2002). According to Loehr (1982) mentally resistant athletes perform various behaviors that make them emotionally comfortable, calm and strong. There are two important features that improve these behaviors. First, it is the ability to use energy positively in crisis and difficult situations, and the other is a strong thinking ability for problems, oppression, mistakes and correct behavior in a competitive environment.

In this context, the aim of this study is to investigate the mental stamina of hockey athletes according to their age, sport year, marital status, income status, settlement, leisure time evaluation and reveal the relationship between them.

## 2. Methodology

### 2.1. Research Model

This study is a descriptive method aimed to investigate the various variables of sustainability of student hockey athletes. Descriptive method is a research method aiming to define existing event / phenomenon without intervention of researcher (Karasar, 1995). Descriptive studies aim to define typical characteristics of a particular group and to make conclusions about how people in a particular group will behave in response to certain situations (Borg and Gall, 1989).

### 2.2. Research Group

Research group; There were 122 student female athletes who participated in Hockey Super League competitions in Konya Province on 15-28 April 2018 (Age = 18,39 ± 2,88). The research scale was voluntarily applied on students face to face by being interviewed where they learned.

### 2.3. Data Collection Tools

The data collection tools required to reach the determined objectives related to the research are given below:

### 2.4. Personal Information Form

In order to collect information about the personal characteristics of the participants and to establish the independent variables of the research, an information form consisting of 6 variables (age, marital status, income status, place of residence, sport year and difficulty in leisure time) were prepared by the researcher.

### 2.5. Sport Mental Toughness Questionnaire (SMTQ)

In order to determine the level of mental toughness in the sports, Sport Mental Toughness Questionnaire - SMTQ-14 developed by Sheard *et al.* consists of 14 items. In addition to the general mental toughness, the scale consists of three sub-dimensions (Confidence, Control and Constancy) with the 4-point Likert type (1 = False; 4 = Fully True). The Cronbach Alpha values for the subscales of the original scale were 0.81 for the confidence subscale; 0.74 for constancy sub-dimension; The control subscale was 0.71 (Sheard *et al.*, 2009).

As a result of the analyzes conducted on 509 athletes participating in the inventory with a mean age of 20, the fitness index values; Good compliance index as (GCI) = 0.95, Corrected goodness of fit index as (CGFI) = 0.93, The mean error square root mean as (MESR) is 0.05, The residual compliance index as (RCI) = 0.05, The comparative compliance index (CCI) = 0.92, The incremental compliance index (ICI) 0.93 were found (Sheard *et al.*, 2009). The description of the three sub-dimensions in the Mental Toughness Inventory in Sport is presented below (Sheard, 2013).

The internal consistency (Cronbach Alpha) reliability coefficients of this study were found as .75 for total mental toughness, .82 for confidence in mental toughness subscales, .71 for constancy and .73 for control.

### 2.6. Data Collection

Firstly, the available information on the purpose of the research was given in a systematic way by searching the literature. Hence, a theoretical framework has been established. Secondly, " Sport Mental Toughness Questionnaire-SMTQ " developed by Sheard *et al.* (2009) and information form to gather the participants' personal information were used.

### 2.7. Data Analysis

During the analysis and evaluation of the data; The data were analyzed using the Spss 25.0 for Windows package program. Percentage and frequency methods were used to determine the distribution of the personal information of the participants. In order to test whether the sub-dimensions of both scales show normal distribution, histograms were examined, and finally, mental resilience and all sub-dimensions were found to have normal distribution. Accordingly, One Way Anova and t-Test analysis were performed to determine the main differences.

## 3. Results

### 3.1. Personal Characteristics of the Research Group

The data and comments on the demographic characteristics of the students are given below.

**Table-1.** Distribution of Demographic Characteristics of the Sample Group Participated in the Study.

		n	%
Age	18-19 Yaş	94	77,0
	20-21 Yaş	28	23,0
Marital Status	Bekar	80	65,6
	Evli	42	34,4
Income Statue	0-1500 tl	64	52,5
	1501 TL-3000 TL	58	47,5
Settlement	Büyükşehir	34	27,9
	İl	38	31,1
Sports Year	İlçe	50	41,0
	3-5 yıl	67	54,9
	6-8 yıl	32	26,2
Difficulty in Leisure Time	9 yıl +	23	18,9
	Her zaman	30	24,6
	Bazen	47	38,5
	Hiçbirzaman	45	36,9

Source: This table is result of our studies.

According to Table 1, 77% of the participants are between 18-19 and 23% are between 20-21. According to the marital status, 65.6% are single and 34.4% are married. According to the income situation, 52.5% of the total income is between 0-1500 TL and 47.5% is between 1501-3000TL. According to the place of residence, 27.9% metropolitan, 31.1% of the province and 41.0% of the districts. According to sports year of the athletes, %54,9 of the athletes is between 3-5 years, %26,2 between 6-8 years and %18,9 between 9 and over years. According to the difficulty in evaluating leisure time 24.6% of the time, 38.5% of all times, and 36.9% of the time they never have difficulty in evaluating their leisure time.

**Table-2.** Results of the Participants' Mental Toughness on Total Score and Sub-Dimension Levels.

	n	$\bar{X}$	Ss	Min	Max
Total Mental Toughness	122	39,43	5,624	26,00	54,00
Mental Confidence	122	17,72	3,168	10,00	24,00
Mental Control	122	10,70	2,334	5,00	16,00
Mental Contancy	122	11,01	1,887	7,00	16,00

Source: This table is result of participants' min. and max. Points.

In Table 2, point averages of total points and sub-dimensions of the participants were examined. As a result of this review; it can be said that the participants' level total mental toughness was almost mid-level with 39.4, mid confidence level with 17.7 from mental toughness subscales, almost mid constancy level with 11.0 and above mid control level with 10.7.

**Table-3.** Independent Group t Test Results for Determining whether Mental Strength Scale Sub-Size Scores differ according to age variable.

		n	Mean	Ss	Sd	t	p-Value
Mental Confidence	18-19 Age	94	17,39	3,112	120	-2,123	,036*
	20-21 Age	28	18,82	3,162			
Mental Control	18-19 Age	94	10,63	2,248	120	-0,668	,505
	20-21 Age	28	10,96	2,631			
Mental Constancy	18-19 Age	94	11,00	1,866	120	-0,088	,930
	20-21 Age	28	11,04	1,990			
Total Mental Toughness	18-19 Age	94	39,02	5,534	120	-1,494	,138
	20-21 Age	28	40,82	5,806			

\*p&lt;.05.

According to Table 3, independent group t test was used to determine whether there was a significant difference in mental confidence subdimension of the mental toughness of the athletes according to age variable ( $t=2,123$ ;  $p<.05$ ).

**Table-4.** Independent Group F Test Results to Determine if Mental Toughness Scale Sub-Size Scores differ according to difficulty in leisure of athletes.

		n	Mean	Ss	Sd	F	p	Dif.
Mental Confidence	Always	30	16,40	3,558	230	6,189	,003*	1-3
	Sometimes	47	17,47	3,070				
	Never	45	18,87	2,607				
Mental Control	Always	30	10,40	2,237	230	,393	,676	-
	Sometimes	47	10,72	2,626				
	Never	45	10,89	2,091				
Mental Constancy	Always	30	11,30	2,215	230	,573	,565	-
	Sometimes	47	11,00	1,681				
	Never	45	10,82	1,874				
Total Mental Toughness	Always	30	38,10	6,645	230	1,843	,163	-
	Sometimes	47	39,19	5,747				
	Never	45	40,58	4,555				

\*p&lt;.05.

According to Table 4, the independent group F test was done whether there is a significant difference between the mental toughness and sub-dimensions and difficulty in leisure time of the athletes. So statistically significant meaningful difference was found between mental confidence sub-dimension of the mental toughness and difficulty in leisure time ( $F=6,189$ ;  $p<.05$ ).

#### 4. Discussion and Conclusion

The individual is a biological entity with a unique cultural, mental and psychological structure (Ridley, 2010). Therefore, the mental and emotional conditions of the athletes are directly related to the performance of the athlete. Today, performance in sport is defined as the physiological, biomechanical and psychological efficiency of the athlete during the competition. Therefore, it depends on the development of both psychological and physiological abilities of the athletes to achieve high and efficient performance and to increase them to a certain level in a suitable way (Konter, 2003).

According to the findings of the study, it can be said that the players are at a mid- level mental toughness. In addition that, mental confidence and mental control levels of sub-dimensions of the mental toughness are slightly higher than the mid-level, but the mental constancy score is slightly below the mid-level. Kazım and Temel (2018) was found high mental confidence and mental control level as their work done to the students studying physical education and sports high school. So it parallels with this study. According to the work done to the American footballers of Yardımcı *et al.* (2017) they found that they had a high level mental toughness and sub dimensions of the menatl toughness. So it doesn't support this study.

While there is no statistically significant difference between the variables of mental toughness, marital status, income status, place of residence and sports year, there is a significant difference between both sports year and difficulty in leisure time variables. According to this, athletes between the ages of 18 and 19 have lower levels of mental confidence than those aged 20 to 21 years. The reason for this can be explained as the experience of maturity and experience and experience gained from life. According to the study of Kayhan *et al.* (2018) and over age group of athletes in the individual and team sport groups have more mental toughness level than the other age groups. So it supports this work. And the study of Connaughton *et al.* (2008) supports this study, too. However, Kalkavan *et al.* (2017) showed that the studies did not make a significant difference in the mental strength scores of the ages. Hence it doesn't support the study.

As a result, it can be concluded that the leisure time of the athletes is always less mentally trustworthy than those who have difficulty in evaluating their free time. The reason for this can be explained as having the and physical comfort of the person evaluating the leisure time.

#### 5. Recommendations

More studies are needed to examine the relationship between variables in this area. Because the lack of empirical studies in the related literature has made it difficult to interpret the findings.

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