European Journal of Physical Education and Sport Science
ISSN: 2501 - 1235
ISSN-L: 2501 - 1235
Available on-line at: www.oapub.org/edu

doi: 10.5281/zenodo.3229690 Volume 5 | Issue 9 | 2019

EXAMINATION OF MENTAL TOUGHNESS LEVELS OF DART PLAYERS

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Abstract:
Purpose: The aim of this study was to investigate the mental toughness levels of athletes interested in the dart sector. **Methods:** In our study; SMTQ, consisting of 13 items and 3 sub-dimensions were used. The sample group consisted of 53 athletes and personal information form also applied to the participants. Since the data set did not conform to the normal distribution, Mann-Whitney U and Kruskal Wallis H tests were used for nonparametric. **Results:** At the end of the research; there is no statistically significant difference found in all sub-dimensions of the scale when the level of the mental toughness of the participants is examined according to gender and age group. However, we found that there is a significant difference in confidence sub-dimension also there was no statistically significant difference in the average constancy and control sub-dimensions of the participants according to the training age groups. **Conclusions:** In the study, it was determined that age and gender variables had no effect on mental toughness level in the sport, however, the athletes with 4-5 years of experience in the confidence subscale of the training age had less mental toughness than the other groups. In this respect, we can say that more experienced athletes have more mental toughness levels.

Keywords: mental toughness, dart, sport psychology

1. Introduction

Mental toughness is a term commonly used worldwide by the athletes' community and the media to describe the superior mental traits of a community [1]. Jones et al. [2] defined mental toughness as follows: in a competitive and stressful situation, they can enjoy the pressure, even after challenging situations, self-confidence can protect, performance is able to show performance against the negativities. Having a natural or advanced psychological threshold allows us to cope better with your competitor's

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performance (competition, training, lifestyle), under pressure, under control, in a focused, focused, self-confident way.

2. Literature Review

Undisputed mental toughness is one of the most important psychological structures for athletic performance excellence. Whether it's a 10-foot final to win a golf tournament, or a chance to play tennis in two sets to win the match in five sets, it's no doubt that mental toughness is invaluable by sport participants. For example, most elite athletes claim that at least 50% of superior athletic performance is the result of mental or psychological factors that reflect the phenomenon of mental toughness [3]. 83% of the trainees consider mental toughness as the most important psychological characteristics to determine the success of competition [4].

Despite the widespread acceptance of the importance of mental toughness to perfect performance in coaches and scientific communities, only recently researchers have begun to draw a considerable attention to this difficult phenomenon [5]. Mentally resilient athletes tend to be highly competitive, committed, self-motivated, effectively coping, and continuing to concentrate where they are under pressure, to continue when forced and to maintain a high level of faith even after a setback [6]. Sheard [7] points to mental toughness as a mindset behind sportive success. The mental toughness presented as an understanding appears to be open to manipulation through mental skill training.

In darts; it is necessary to decide in a short time, and to concentrate very well. A moment of carelessness in this sport can change the direction of the shot and does not hit the target. In darts competitions that require high levels of motivation and concentration, breaths are held and the final shot is expected to hit the target. Missing a shot takes you to lose the game. The fact that the athletes are mentally comfortable and ready to achieve success in hit sports is a very important factor for achieving concentration and for long term success. Mental toughness is an issue that should be emphasized for dart athletes and coaches in order to prevent performance from being influenced by many factors that affect performance.

The aim of this study was to investigate the mental toughness levels of athletes interested in the dart sector. In addition, it is planned to examine the variables in terms of gender, age, training age and international degrees, which are thought to be effective in the mental toughness levels of the athletes. In this study, it will be examined how the mental toughness levels of athletes engaged in dart sports and how they relate to the determined variables.

3. Material and Methods

3.1. Subjects

The average of the 53 dart athletes in the 19-29 age range (Mean ± SD: age 19,08±1,66yrs), the mean sub-dimension of mental toughness confidence dimension

16,92±1,80, the average of attachment sub-dimension 12,58◎2,22, the average of control sub-dimension 10,96±1,89 was determined.

Table 1: Descriptive Statistics Table on Numerical Variables

	n	Mean	ss.	Min	Max
Age	53	19,08	1,66	17	29
Confidence	53	16,92	1,80	11	20
Constancy	53	12,58	2,22	7	16
Control	53	10,96	1,89	7	15

3.2. Methodology

This study aims to determine the mental toughness levels of sportsmen interested in darts. Accordingly, prior to the analysis of the data set, it was tested whether the relevant variables were compatible with the normal distribution to determine the statistical method to be used. At this stage, Kolmogorov-Smirnov and Shapiro-Wilk tests were used. The critical value was p = 0.05. If the p values obtained for the related variables were greater than 0.05, it was accepted that the data fit the normal distribution and in the case of small, the data did not conform to normal distribution. Since the data set did not conform to the normal distribution, Mann-Whitney U and Kruskal Wallis H tests were used for nonparametric methods.

The universe of this study; in 2018, Turkey joined the darts championships (N = 132) constitutes athletes. The sample group consisted of 53 athletes determined by the simple random sampling method, which allowed all employees to enter the sample in an equal and coincidental manner, and that the results of the study were determined quickly and easily [8,9].

The survey method was used as the data collection method for the purpose of the study. Personal information form and mental toughness inventory were applied to the participants. After the participants were informed about the study, participation in the study was carried out voluntarily.

3.3. Sports Mental Toughness Questionnaire

SMTQ (Sports Mental Toughness Questionnaire) was developed to determine the level of mental endurance in sports by Sheard et al. [10]. SMTQ, consisting of 13 items and 3 sub-dimensions adapted to Turkish by Pehlivan [11], was also used. The inventory consists of confidence sub-dimension (2,3,4,5,6), constancy sub-dimension (7,8,9,10) and control sub-dimension (11,12,13). The Cronbach's Alpha value of the whole scale was 0.72. Scale 1 = not correct at all; 4 = Likert type rating form.

4. Results and Discussion

Table 2: Demographical Characteristic of Participants

Variables		n	%
Gender	Man	34	64,2
	Woman	19	35,8
Age Groups	17-19 Age	40	75,5
	20 age and over	13	24,5
Training Experience	2-3 Year	7	13,2
	3-4 Year	12	22,6
	4-5 Year	21	39,6
	5-10 Year	13	24,5

Table 1 shows that 64.2% of the participants are male and 35.8% are female. 75.5% of the participants were in the age group of 17-19 and 24.5% were 20 years and older. 13.2% of the participants were 2-3 years, 22.6% 3-4 years, 39.6% 4-5 years and 24.5% were in the 5-10 years training experience group.

Table 4: Examining Mental Toughness Levels of Participants According To Gender Variable

Sub-Dimensions	Gender	n	Mean	SD	Min	Max	Mean Rank	Z	p
Confidence	Man	34	16,74	1,90	11	20	25,75	-0,803	0,422
	Woman	19	17,26	1,59	15	20	29,24		
Constancy	Man	34	12,68	1,92	8	16	27,35	-0,225	0,822
	Woman	19	12,42	2,73	7	16	26,37		
Control	Man	34	10,59	1,84	7	14	24,44	-1,643	0,101
	Woman	19	11,63	1,83	9	15	31,58		

When Table 4 is examined, there is no statistically significant difference in all sub-dimensions of the scale when the level of the mental toughness of the participants is examined ($p > 0.05$).

Table 5: Comparison of Confidence, Constancy and Control Scores with Mann Whitney U Test According to Age Group

Sub-Dimensions	Age	n	Mean	SD	Min	Max	Mean Rank	Z	p
Confidence	17-19 Age	40	17,08	1,97	11	20	28,65	-1,39	0,165
	20 Age or Over	13	16,46	1,05	15	18	21,92		
Constancy	17-19 Age	40	12,55	2,39	7	16	26,99	-0,011	0,991
	20 Age or Over	13	12,69	1,70	10	15	27,04		
Control	17-19 Age	40	11,10	1,85	7	15	28,16	-0,979	0,328
	20 Age or Over	13	10,54	2,03	7	15	23,42		

When Table 5 is examined, there is no statistically significant difference in the average confidence, constancy, control sub-dimensions of the participants according to the age variables ($p > 0.05$).

Table 6: Comparison of Confidence, Constancy and Control scores with Kruskal Wallis H test according to Training Experience

Sub-Dimensions	Training Experience	n	Mean	SD	Min	Max	Mean Rank	H	p	Difference
Confidence	2-3 Year	7	17,71	1,98	15	20	32,93	7,988	0,046*	1-3 2-3 4-3
	3-4 Year	12	17,42	1,38	15	19	31,21			
	4-5 Year	21	16,10	1,64	11	19	19,76			
	5-10 Year	13	17,38	1,94	13	20	31,62			
Constancy	2-3 Year	7	12,29	2,81	9	16	24,29	2,161	0,541	-
	3-4 Year	12	13,17	1,90	10	16	30,88			
	4-5 Year	21	12,81	2,06	9	16	28,33			
	5-10 Year	13	11,85	2,44	7	15	22,73			
Control	2-3 Year	7	11,57	2,23	9	14	31,00	1,048	0,791	-
	3-4 Year	12	11,17	1,40	9	13	28,83			
	4-5 Year	21	10,67	1,56	7	13	25,00			
	5-10 Year	13	10,92	2,60	7	15	26,38			

Table 6 shows that there was a statistically significant difference in the mean confidence subscale of the participants according to their training experience ($p < 0.05$). The mean confidence subscale score of the participants in the 4-5-year group (16,10), the average confidence score of the participants in the group of 2-3 Years, 3-4 Years and 5-10 Years (17,71 - 17,42 - 17), 38) is significantly lower. The reason for this is that participants with more than 5-10 years of experience will have more experience and also the groups with 2-3 and 3-4 years of experience will be the difference in the number of people. There was no statistically significant difference in the average constancy and control sub-dimensions of the participants according to the training age groups ($p > 0.05$).

It was determined that the participants did not show any change according to gender in the sub-dimensions of mental toughness level in sports ($p > 0.05$). In the literature, Yarayan et al. [12] found no significant difference in the mental toughness level of Confidence, Constancy and Control sub-dimensions of individual branches according to the gender of the participants in their study on the team and individual athletes. A significant difference was found in Constancy sub-dimension of team sports. In a study by Pehlivan [9], it was determined that the level of mental toughness in sports was not significantly different in the mean of Confidence, Constancy and Control sub-dimensions according to gender variable.

In a study conducted by Masum [13] on tennis athletes, a significant difference was found in mental toughness levels according to the gender variable. In the study, a significant difference was found between gender and mental toughness. Female athletes in the study are reported to have lower mental toughness averages than male athletes. Nicholls et al. [14] found a statistically significant relationship between gender and mental toughness level in a study they conducted. Mental toughness levels were higher in males than females. In general, it is seen that the gender variable does not show any difference with mental toughness level and sub-dimensions in sports. In other words, it can be said that gender has no effect on the mental durability level.

The level of the mental toughness of the participants according to their age; There was a significant difference in confidence and control sub-dimension ($p < .05$). In the sub-dimensions of confidence and control; It is seen that the difference between 18-25 and 26-32 age group. The level of mental toughness in sport; constancy sub-dimension did not change according to age (Table 5). In SMTQ, the highest score of confidence in athletes between the ages of 18-25, the highest score, the highest score in the sub-dimension of constancy to athletes between the ages of 34-41 and the control sub-dimension of the highest score of the athletes in the age range 26-33 is seen to belong to. When the related literature was reviewed, Yardımcı et al. [15] showed that there were differences in control and commitment sub-dimension in the relationship between mental durability level and age variables.

Pehlivan [10] in his study, the mental toughness inventory in fitness, the sub-dimensions of confidence and constancy did not show a significant difference according to the age variable. It was found that there was a significant difference between the control sub-dimension scores of the athletes in terms of the age variable. Connaughton et al. [16] reported that older athletes have a higher level of mental toughness than younger athletes. In a study conducted by Yardımcı et al. [15] showed that the mental toughness of American football athletes in sports has decreased in terms of mental strength scores of 24 and above, 21 - 23 years old and under 20 years of age. Rust [17] found no association between mental toughness and age. Yıldız and Yılmaz [18] in his work on mental toughness and self-efficacy, as stated in the increase in mental toughness have increased.

In another study, there was no significant difference in the level of mental toughness and courage of the wrestlers according to their age [19]. The level of mental toughness in sports according to the training age of the participants; It was determined that the sub-dimensions of confidence, constancy, and control did not change according to the training experience. When we look at the related literature, Miçooğulları et al. [20] found no significant difference in terms of their training age when they examined the mental toughness levels of 15-year-old and 11-15-year-old soccer players.

Nazarudin et al. [21] found that mental toughness levels of individuals with the training experience of 15 years and above were higher than those with less training age in the dimension of confidence of the mental toughness scale.

Güvendi et al. [19] found a significant difference in the constancy dimension of mental toughness scale according to the sports year in favor of those who wrestle between 1 and 5 years. They also found that the average duration of the mental toughness of the players with sports years of 5 years and above was higher than those who made this sport for 6-10 years.

Connaughton et al. [16], in his study, he found that athletes with higher training experience had higher mental toughness points than athletes with inexperienced or less experienced athletes. In another study, Yıldız & Yılmaz [18] found that the level of mental toughness increased as the training experience increased. Nicholls et al. [22] reported that the level of experienced athletes is an important variable that increases the individual's mental toughness level.

5. Recommendations

Enrichment of the studies conducted in the literature on mental toughness is important in terms of giving more attention and attention to the issue of mental toughness which affects the performance of both athletes and coaches in sport psychology.

6. Conclusion

In the study, it was determined that age and gender variables had no effect on mental toughness level in the sport, however, the athletes with 4-5 years of experience in the confidence subscale of the training age had less mental toughness than the other groups. In this respect, we can say that more experienced athletes have more mental toughness levels. While similar studies are performed, the demographic characteristics of the study may be increased or applied in different sports branches.

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