

Comparative Study of Sport Mental Toughness between Soccer Officials

Bülent Okan Miçoğulları^{1*}, Hayrettin Gümüşdağ², Uğur Ödek¹, Özkan Beyaz¹

¹Faculty of Education, Department of Physical Education & Sports, Nevşehir Hacı Bektaş Veli University, Turkey

²Physical Education & Sports High School, Bozok University, Yozgat, Turkey

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Abstract Gucciardi et al. (2009) [1] suggest that mental toughness is more a function of environment than domains, and as such, mental toughness is potentially important in any environment that requires performance setting, challenges, and adversities. Due to vital importance of mental toughness in sports and particularly in soccer, this paper focused on the comparison of sport mental toughness levels of soccer officials with their age group, education level, refereeing category and sports experience years. Mental toughness was checked by Sports Mental Toughness Questionnaire (SMTQ). The SMTQ was applied to soccer officials (159 licensed referees) who all were registered to the Turkish Football Federation (TFF). The sample consisted of 146 male subjects, mean age was 29.10 years (SD = 7.54, range = 19–54) and 13 female subjects mean age was 22.82 years (SD = 4.71, range = 19–27). To determine the difference of Sport Mental Toughness level among soccer referees One-Way ANOVA was used for normal distribution and Scheffé Test was used for determining the differences across groups with through SPSS Package 21.0 and the significant level was set at 0.05. The findings of this research paper showed that there were significant differences between soccer officials' three sub-factors (confidence – constancy - control) of mental toughness and their officiating experience years. This could be attributed to the fact that 15 and above years experienced officials were mentally tougher than those with 0-5 years' experience and those with 6-10 years' experience. There were not any significant differences between other variables (refereeing categories, education levels and age groups) of soccer officials and their mental toughness levels.

Keywords Sport Psychology, Mental Toughness, Soccer, Officials (Referees)

1. Introduction

Soccer is one of the most popular sports worldwide and a

lot of research has been conducted on various aspects of this sport. One of the unique aspects of soccer is that people play many roles. Presumably, a coach, player, and referee from the soccer have a common knowledge base (e.g. declarative knowledge about the aims and general performance within that sport), but are often required to perform different tasks within the context of this sport [2]. Coaches, players and referees try to reach a comprehensive understanding of parameters related to successful athletic performance [3]. However, most of the sport psychology research has focused to examine mostly athletes' psychological performance excellence and other contexts are neglected. Officials are crucial in the soccer, because without them, it would be impossible to develop of the competition of soccer [4]. Therefore, officials' psychological performance should also be considered as an area of further exploration.

Officiating requires knowledge, experience, competence, good personality, optimum performance, and concentration. Also it requires quick and accurate response which means officials often have to make decisions under intense time pressure that may have a substantial impact on the outcome of a game. Officiating activity can be influenced by a number of essential characteristics such as: a good knowledge of the rules, a good physical form and an adequate position in the field of play in each [5], as well as adequate visual and auditory acuity [6]. However, such characteristics are not enough to achieve a complete performance. In fact, psychological variables also play a key role in reaching the expected refereeing performance [7].

Based on the above, it is considered a priority to evaluate the different psychological variables that significantly affect the officials' performance. Psychological variables help officials activate their energy to achieve maximum performance [8]. When examining psychological variables and their effects on performance important to consider mental toughness as one of the variables. The most commonly used definition for mental toughness was developed by Jones, Hanton, and Connaughton (2002) [9]. Mental toughness is, "having the natural or developed

psychological edge that enables you to generally, cope better than your opponents with the many demands (competition, training, lifestyle) that sport places on a performer. Specifically, being more consistent and better than opponents in remaining determined, focused, confident, and in control under pressure” (p. 213).

Furthermore, Gucciardi and colleagues have studied mental toughness in soccer - which is the core sport discipline of the present study - and subsequently presented a construct definition of mental toughness [10]:

Mental toughness is the presence of some or the entire collection of experientially developed and inherent values, attitudes, emotions, cognitions, and behaviors that influence the way in which an individual approaches, responds to, and appraises both negatively and positively construed pressures, challenges, and adversities to consistently achieve his or her goals (p. 715).

In a collective manner, it seems that although there are common attributes of mental toughness for a variety of sports and/or specific contexts (e.g. elite athletes, runners, hockey players, soccer players, coaches, soccer referees), there are also specific attributes to each sport and the respective roles played [7, 11, 12, 13, 14]. For example, Slack et al., (2012) have studied referees to understand mental toughness in soccer officiating. For this aim, they have made interviews with 15 elite referees to understand features that supported excellent refereeing. In their study they found a group of mental toughness attributes relating to characteristics of excellent refereeing which include; (a) coping with pressure (e.g. looking calm and composed / awareness from own emotions), (b) robust self-belief (e.g. confidence own and others' abilities), (c) tough attitude (e.g. focus on performance goals, consistent preparation), (d) high work-ethic (working hard to give 100 percent in every game), (e) resilience (e.g. focus on decisions), (f) sport intelligence (e.g. having a position in a game, a feeling for the game), and (g) achieving striving (e.g. take a lesson from game – fighting for excellent refereeing) [7]. It is noteworthy that findings from Slack et al.'s (2012) study have been similar with other studies' findings aiming to reveal attributes of mental toughness [15]. Those findings – mental toughness attributes – are also considered to be specific attributes for excellent soccer officiating.

As explained previously, most of the studies highlighting the importance of mental toughness were focused on and conducted with athletes. This focus, however, has caused a number of flaws in those studies. For example, since those studies mainly focused on athletes but there are other contexts involved in soccer (i.e. other responsible people and officials), many studies neglected the fact that mental toughness can be important and necessary for those stakeholders as well. In the light of information presented so far and due to vital importance of mental toughness in sports, the present study focuses on the comparison of mental toughness between different category soccer referees.

2. Methodology

2.1. Participants

The participants were 159 athletes who regularly refereed a soccer game during the 2017 – 2018 soccer season in Turkey. A questionnaire was applied to those 159 soccer officials all of whom were registered to the Turkish Football Federation (TFF). The sample consisted of 146 male subjects, mean age was 29.10 years (SD = 7.54, range = 19–54) and 13 female subjects mean age was 22.82 years (SD = 4.71, range = 19–27).

Participants' soccer officiating was maintained at different levels: 81 (51%) refereed at District level, 32 (20%) at the Classification Assistant level and 46 (29%) at C Classification Assistant Referee level. The responding officials had on the average been active as soccer officials at different durations: 52 (33%) between 0-5 years, 48 (30%) between 6-10 years, 36 (23%) between 11-15 years and 23 (15%) 16 years and above. All participants were fully informed about the aims of the study, the procedures, and gave their voluntary consent before participation.

2.2. Measuring Instruments

2.2.1. Sport Mental Toughness Questionnaire (SMTQ: Sheard et al., 2009)

The Sport Mental Toughness Questionnaire (SMTQ) is a 14-item questionnaire established to ascertain athletes' mental toughness levels. The SMTQ is an instrument that measures three dimensions of mental toughness: confidence ($\alpha = .80$, 6 items), constancy ($\alpha = .74$, 4 items), and control ($\alpha = .71$, 4 items). Participants rated items on a four point Likert scale anchored by not true at all and very true. Higher composite subscale scores reflect higher levels of each dimension and higher scores a single composite score reflects higher global mental toughness [16].

2.3. Data Analysis

All statistical analyses were calculated by SPSS 21.0 statistical package. Tests for normality were performed on the data with the Shapiro-Wilk test. All data were normally distributed. Data were presented as quantitative data and expressed as the mean \pm standard deviation (SD). Demographic data were expressed using descriptive statistics. One way Anova was used to test differences in total mental toughness across categories of soccer officials.

3. Results

In this section, both descriptive and inferential statistics results are presented. One hundred fifty nine soccer officials completed the survey. The majority of participants were male 146 (92%); there were 13 female (8%). There were 49

participants (30%) between 19 and 24 years of age; 74 (47%) participants between 25 and 34 years of age; 31 (20%) participants between 35 and 44 years of age and 5 (3%) participants between 45 and 54 years of age. 51 % of the participants reported that they worked as a district level referee; 20 % of them worked as a classification assistant referee and 29% of them worked as a C classification assistant referee. The majority of participants graduated from university (76.1%), 17% of them graduated from post-graduate education and only 7% of them graduated from high school. The last independent variable of the study was refereeing experience years of the participants. Most of them had 0-5 year experience in their job with 52 participants (33%), 48 participants (30%) reported they had 6-10 year experience, 36 participants reported they had 11-15 year experience, and 23 of them reported they had 15 – above year

experience within soccer officiating. A one-way anova was conducted to compare the effect of age groups of soccer officials on their levels of mental toughness (Table 1). Mental toughness levels were calculated with its sub-dimensions' averages and its total average. It was found that there was no statistically significant difference across age groups of soccer officials participating in the study ($p > .05$).

In Table 2, one-way anova was applied to investigate effect of different categories of soccer officials who participated in the research are significantly different according to the mental toughness variable. It was found that there was no statistically significant difference between categories of soccer officials and their total mental toughness levels and its sub-dimensions ($p > .05$).

Table 1. A One-way ANOVA results between age groups and mental toughness levels.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Mental Toughness	Between Groups	.58	3	.19	1.03	.38
	Within Groups	28.88	155	.19		
	Total	29.46	158			
Confidence	Between Groups	1.12	3	.37	.64	.59
	Within Groups	89.94	155	.58		
	Total	91.05	158			
Constancy	Between Groups	1.02	3	.34	1.53	.21
	Within Groups	34.48	155	.22		
	Total	35.50	158			
Control	Between Groups	.87	3	.29	.44	.73
	Within Groups	102.70	155	.66		
	Total	103.57	158			

Table 2. A One-way ANOVA results between categories of officials and their mental toughness levels.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Mental Toughness	Between Groups	.26	2	.13	.70	.50
	Within Groups	29.19	156	.18		
	Total	29.46	158			
Confidence	Between Groups	.67	2	.33	.57	.56
	Within Groups	90.39	156	.58		
	Total	91.05	158			
Constancy	Between Groups	.63	2	.32	1.41	.25
	Within Groups	34.87	156	.22		
	Total	35.50	158			
Control	Between Groups	1.52	2	.76	1.16	.32
	Within Groups	102.05	156	.65		
	Total	103.57	158			

Table 3. A One-way ANOVA results between education level and mental toughness levels.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Mental Toughness	Between Groups	.01	2	.01	.036	.97
	Within Groups	29.44	156	.19		
	Total	29.46	158			
Confidence	Between Groups	1.35	2	.68	1.17	.31
	Within Groups	89.70	156	.58		
	Total	91.05	158			
Constancy	Between Groups	.18	2	.09	.39	.68
	Within Groups	35.32	156	.23		
	Total	35.50	158			
Control	Between Groups	.88	2	.44	.67	.51
	Within Groups	102.69	156	.66		
	Total	103.57	158			

Table 4. A One-way ANOVA results between sports experience years and mental toughness levels.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Mental Toughness	Between Groups	4.479	3	1.49	5.96	.00
	Within Groups	37.977	155	.25		
	Total	29.456	158			
Confidence	Between Groups	6.51	3	2.17	3.98	.01
	Within Groups	84.55	155	.55		
	Total	91.05	158			
Constancy	Between Groups	1.84	3	.62	2.83	.04
	Within Groups	33.66	155	.22		
	Total	35.50	158			
Control	Between Groups	1.39	3	.46	.70	.55
	Within Groups	102.18	155	.66		
	Total	103.57	158			

A one-way anova was conducted to compare the effect of education level of soccer officials on their levels of mental toughness (Table 3). It was found that there was no statistically significant difference between education levels of soccer officials participating in the study and their mental toughness levels and its sub-dimensions ($p > .05$).

A one-way anova was used to compare the effect of officiating experience years (working years as a referee) of participants are significantly different according to the mental toughness (Table 4). It was found that –with the exception of the control sub-dimension- there was statistically significant difference between the sports experience years of referees and their mental toughness level and sub-dimensions (confidence and constancy) ($p < .05$).

Scheffé test was used to determine which group had the significant difference. According to the results of the study, it can be noted that 15 years and above soccer officials scored

significantly higher than officials with both 0-5 years and 6-10 years. However, they did not score significantly higher than officials with 11-15 years of experience in terms of total mental toughness scores and confidence and constancy scores. In other words, Scheffé post hoc comparisons showed that 15 years and above officials had higher scores than both 0-5 years and 6-10 years soccer officials for averages of total score of mental toughness, confidence and constancy.

4. Discussion

In modern sports, mental toughness is a broadly used expression. It is a factor, which differentiates the effective officials from the ineffective ones. Sports referees with mental toughness have the ability to improve their excellence

to the top level at crucial moments in a field. Scientists started considering soccer referees as performers in their working areas especially in recent years. The sport excellence of elite referees depends on the benefit of using the psychological abilities along with physical abilities [17]. The influence of psychological factors on officiating performance have enlarged nowadays, to such a degree that the officials point out that sports excellence cannot be ensured by only raw physical abilities or features. Effective usage of psychological skills allows officials to mobilize their energy for maximum performance [18].

Previous research focused on officials' sources of stress, models of excellence, stress-related experiences and coping. However, the mental toughness level of officials did not receive enough scientific attention. The present study, therefore, intended to investigate the effect of age, education level, experience years and different categories on soccer officials' mental toughness levels. In fact, it has been observed that there is not enough scientific attention for overall mental toughness phenomenon but there are few studies on components (confidence – constancy - control) of mental toughness in sport psychology.

The present study examined the relationships between officials' overall mental toughness-and its' components- and other variables such as education level, age, refereeing category and sports experience years.

Education levels of officials did not show any significant difference with components of mental toughness and overall. Partial findings show that differences of age categories of officials do not influence their mental toughness. Those results are inconsistent with the study conducted by Nicholls et al. (2009) [19]. In their study it was found that increasing age was shown to predict higher scores in total mental toughness and its components. Moreover, Folkessen et al. (2002) [20] tried to examine effects of age categories on soccer referees' concentration and motivation levels, which are accepted as an attributor of the mental toughness. One possible explanation for this situation may have been that the younger referees have fewer amounts of matches to officiate than the older ones. In contrast with these, there are support our findings. For example, Nazarudin et al. (2009) [21] found no significant differences in mental toughness (psychological preparation) across age levels among rugby referees. The study that was conducted by Anderson (2000) also found that there were not significant differences between age and psychological skills, especially in terms of self-efficacy [22].

Third criterion variable was categories of officials (District level referee; Classification assistant referee and C classification assistant referee). The findings show that there were no significant differences between officiating categories and mental toughness level and its components. In contrast with this; Diotaiuti et al., (2017) studied on self-efficacy skill that accepted as an attributor of the mental toughness. There were 350 active licensed officials of national and regional level. The findings of that research

revealed that the national first-level referees have a level of self-efficacy significantly higher than that of the regional referees [23]. Moreover, Giske, Haugen & Johansen, (2016) aimed to examine different category soccer officials' levels about mental preparation to the matches. As they found, elite officials report significantly greater use of mental training compared with sub-elite referees [24]. The results can be speculated as upper category officials may get through the fact that the effects of mental development are not immediate and instead require patience and persistence.

Last criterion variable was years of sports experience years of soccer officials. There were four groups as 0-5 years, 6-10 years, 11-15 years and 15 years and above. Our results showed significant differences between 15 years - above group and 0-5 years / 6-10 years on overall mental toughness, confidence and constancy components. There were not found any significant differences for the control component. Also according to results, there was no significant difference between 11-15 years group and 15 years – above group, whose results that are consistent with the study conducted by Nazarudin et al. (2009) especially for confidence component of mental toughness. In their study, they found significant difference in the component of mental toughness (confidence). 15 years and above group's experience surpassed the all groups that were classified as 11 to 15 years' experience, 6 to 10 years' experience and 1 to 5 years' experience [25].

Similarly our finding that years of experience is effective on mental toughness levels and its' components support Connaughton et al.'s findings [26]. Connaughton et al. (2008) announced that experienced sports officials have higher mental toughness level than less experienced ones. In their study, they concluded that in the development of mental toughness experts should educate referees in their careers from initial periods rather than beginning when they achieve elite status.

In previous studies, it has been found that more experienced referees reported less negative scores within psychological skills (anxiety, stress, choking etc.) and higher positive scores within psychological skills (self-efficacy, confidence, motivation etc.) [18, 19, 20, 27, 28].

There were no significant differences between 15 years and above group and 11-15 years of sports experience group on mental toughness levels. This result can be speculated as there is not too many years of difference between the two groups. This means their experiences about officiating soccer matches are similar.

5. Conclusion

Consequently, sport officials have a challenging job, they need to engaged in many different situations, including evaluating and judging the positions that take place during the match, making fast decisions, managing the game, paying attention to multiple aspects of the game, keeping

order, and solving disputes [29]. Moreover, mental toughness as mentioned above can be defined as “an unshakeable perseverance and conviction towards some goal despite pressure or adversity (p.94)” [30]. In the light of this information, the findings of this study have increased our understanding about the mental toughness levels of soccer officials.

The main limitations of the present study include the gender composition of the sample (mainly male) and the fact that the comparing gender difference related with mental toughness level may add valuable information. Moreover, we only considered the perceptions of the soccer referees' mental toughness level comparison with some variables. Future research can also be conducted including an intervention-education programme about mental toughness to see difference by the time. Because some of the officials were not to be aware of their thoughts or behaviors were directly related with their mental toughness level. After that, the benefits of mental toughness within their career may become more visible and valid in their mind. In spite of these limitations, the present research offers preliminary support and information to guide future studies based on pure mental toughness phenomenon and its effects on officials.

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