

ORIGINAL RESEARCH

## Comparison of emotional intelligence levels of soccer players according to age and playing position

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### Abstract

**Background:** Several studies have compared the physical, physiological and anthropometric characteristics according to age and playing position in soccer. However, no studies have researched the comparison of emotional intelligence (EI) levels of soccer players. **Objective:** The purpose of this study was to compare the EI levels of soccer players in their age and playing position. **Methods:** A total of 550 male soccer players were divided into four groups according to their age: under-17 ( $n = 135$ ), under-19 ( $n = 131$ ), under-21 ( $n = 144$ ) and 22+ ( $n = 140$ ) and playing position: goalkeeper ( $n = 101$ ), defender ( $n = 159$ ), midfielder ( $n = 148$ ) and forward ( $n = 142$ ). EI levels of soccer were evaluated through the Emotional Intelligence Inventory in Sport. **Results:** Players in the lowest age category showed significantly ( $p < .001$ ) higher EI level. Moreover, midfielders have also significantly ( $p = .039$ ) higher EI level than other players. **Conclusions:** The results of this study indicated that the level of EI varies according to players' age and playing position. These findings might be used for the evaluation of psychological and physiological responses required for soccer-specific performance.

**Keywords:** emotional intelligence, soccer, playing position, psychological responses

### Introduction

Soccer is a sport characterized by a high-intensity intermittent load, requiring jumping, shooting, tackling, turnings, sprinting, controlling the ball under pressure, running at different speeds, and sliding tackles with an average game intensity ranging from 80% to 90% of players' individual maximum heart rate (Hill-Haas et al., 2011; Stølen et al., 2005). Previous studies have shown that soccer players cover a distance between 6.1 km and 10.3 km during competitive matches (Castagna et al., 2009). The results of some studies show that successful and effective match performance responses were affected by not only physiological responses but also by technical and tactical match characteristics during soccer matches. Furthermore, these affecting factors depend on the interaction of psychological responses (Gil et al., 2007).

One of the important factors affecting sports performance are emotions such as happiness, anxiety and anger (Jones, 2003). For team or individual athletes in order to perform successful performance under the competitive pressure induced a wide range of emotional responses which have the potential to influence performance (Laborde et al., 2013, 2016; Nieuwenhuys et al., 2008). Numerous studies have confirmed that emotional intelligence (EI) has been related to many factors associated with sports performance such as emotion regulation (Kotsou et al., 2011; Laborde et al., 2011), psychological states (Lane

& Wilson, 2011) and coping strategies (Cowden, 2016). It is well known from previous study results that there is a relationship between playing position and using psychological skills in soccer (Thelwell et al., 2007). In modern soccer, midfielders (playmakers) act as a bridge between defence and attack for the transition of the game (Clemente et al., 2015; Korte & Lames, 2018; López-Peña & Touchette, 2012). Thus, increased positive team interactions between playing positions may affect tactical organization both defensive and attacking, team networking and soccer-specific performance during a modern soccer match (Clemente et al., 2015; Slimani et al., 2016; Thelwell et al., 2007). Therefore, competitor athletes should train their emotions in order to consistently cope with the stress and to increase attention and decision-making ability level during competitions and matches.

Similarly to other team sports such as basketball, handball and volleyball, numerous studies investigated physiological responses (Lago-Peñas et al., 2011), physical (Kammoun et al., 2020) and technical characteristics (Dellal et al., 2010) of soccer players in different leagues, ages and performance levels according to playing position. However, no study attempted to examine the EI levels of young soccer players according to their age and playing position. Thus, the purpose of this study was to compare the EI levels of soccer players in their age and playing position. Previous studies confirmed that adolescents are more

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active, open-minded and also adaptive to problem-solving (Alumran & Punamäki, 2008; Seiffge-Krenke & Klessinger, 2000). Therefore, we hypothesized that the youngest players and midfielders have higher EI level than the other age category and playing position.

## Methods

### Participants

The participants were regional amateur Turkish male soccer players accustomed to a training workload of more than 4 training units per week and involved in soccer training and matches for at least 5 years in their current playing position. They were fully informed about the study before filling out the questionnaires and signed an informed consent; in non-adults, informed consent was signed by legal representatives. Data collection took place in each club's training centre via paper-and-pencil in pre-season 2020–2021. The questionnaire took approximately 20–25 minutes to complete.

At the beginning of the study, 607 male soccer players were divided into four groups according to age category: under-17 (U-17;  $n = 159$ ), under-19 (U-19;  $n = 140$ ), under-21 (U-21;  $n = 157$ ) and 22 plus (22+;  $n = 151$ ) and playing position: goalkeeper ( $n = 108$ ), defender ( $n = 177$ ), midfielder ( $n = 168$ ) and forward ( $n = 154$ ). Subsequently, a total of 57 players (24 from the U-17, 9 from the U-19, 13 from the U-21 and 11 from the 22+ [range from 22 to 26]) were excluded because of various reasons (e.g., unwillingness to complete the scale and uncompleted scale), resulting in a dropout rate of approximately 10%. The final study sample included 550 players divided into four groups according to their age: under-17 ( $n = 135$ ), under-19 ( $n = 131$ ), under-21 ( $n = 144$ ) and 22+ ( $n = 140$ ) and playing position: goalkeeper ( $n = 101$ ), defender ( $n = 159$ ), midfielder ( $n = 148$ ) and forward ( $n = 142$ ).

The study was approved by the Osmaniye Korkut Ata University Ethics Committee (2020/37/2) and was conducted in a manner consistent with the institutional ethical requirements for human experimentation in accordance with the Declaration of Helsinki.

### Instruments and procedure

The data collection was conducted over a month for all team beginning with the survey consisting of general socio-demographic questions. The Emotional Intelligence Scale (EIS) was developed by Schutte et al. (1998) and based on the ability model in a study by Mayer et al. (2008). The scale contains 33 items. Solanki and Lane (2010) reported that sport and exercise context generally requires self-report measures to be brief. The Emotional Intelligence Scale for use in sport was developed by Lane, Meyer, et al. (2009). The scale has 19 items ( $\alpha = .73$ ). Turkish version of Emotional Intelligence Inventory in Sport (EIIS) for use among athletic sample which has 18 items ( $\alpha = .91$ ) on a 5-point Likert scale anchored from 1 = strongly disagree to 5 = strongly agree, with scores polarized ranging from 18 (low) to 90 (high) and has been validated as a marker of emotions in Turkish sample (Adıgöğür & Görgülü, 2015). The five factors of the

EIIS are appraisal of others' emotions ( $\alpha = .69$ ), appraisal of own emotions ( $\alpha = .85$ ), emotion regulation ( $\alpha = .67$ ), social skills ( $\alpha = .61$ ), utilization of emotions ( $\alpha = .85$ ). The scale included four items of appraisal of others' emotions, three items of appraisal of own emotions, two items of emotion regulation, and three items of social skills and six items of the utilization of emotions. In the present study, the alpha coefficient for the five factors scales in the current study was appraisal of others' emotions ( $\alpha = .67$ ), appraisal of own emotions ( $\alpha = .71$ ), emotion regulation ( $\alpha = .67$ ), social skills ( $\alpha = .61$ ), utilization of emotions ( $\alpha = .73$ ) and EIIS ( $\alpha = .92$ ).

### Statistical analyses

Data were reported as means and standard deviations. An exploratory analysis of data was conducted. Normality assumptions were confirmed using the Kolmogorov-Smirnov test. A one-way analysis of variance test was used in order to compare the differences between players' age category and playing positions. When there were differences in the analysis of variance test, the Tukey post-hoc test was used. To estimate the strength of significant findings, effect size partial eta-squared was used. Effect size values were interpreted as follows:  $\geq .01$  corresponds to a small effect,  $\geq .06$  represents a medium effect and  $\geq .14$  is considered as a large effect. All statistical analyses were performed using IBM SPSS Statistics (Version 22; IBM, Armonk, NY, USA), and the level of statistical significance was established at  $\alpha = .05$ .

## Results

The soccer players average scores of EIIS ( $M \pm SD$ ) were  $3.66 \pm 0.63$ , their average score for appraisal of others' emotions  $3.77 \pm 0.74$ , their appraisal of own emotions  $3.89 \pm 0.86$ , their emotion regulation  $3.48 \pm 1.04$ , their social skills  $3.30 \pm 0.99$ , and their utilization of emotions  $3.72 \pm 0.72$ .

Table 1 shows the level of EI of soccer players according to their age category. The table also demonstrates that players in the lowest age category showed significantly ( $p < .001$ ) higher EI level than the others except for appraisal of their own emotions.

The level of EI and appraisal of other emotions of midfielders were significantly ( $p \leq 0.05$ ) higher compared with the other playing positions such as goalkeeper, defender and forward (Table 2).

## Discussion

To our knowledge, the present study is the first to examine the EI levels in male soccer players according to age and playing position. Many previous studies had investigated EI in individual and team sports. With the exception of a recent study that assessed female soccer players (Rutkowska & Bergier, 2015), the majority of studies have investigated other team sports such as rugby, basketball and cricket (Cowden, 2016; Lane et al., 2010; Zizzi et al., 2003). Because of the soccer-specific physical, physiological and

**Table 1** The level of emotional intelligence of soccer players according to their age category

Emotional intelligence sub-scale	<i>F</i> (3, 546)	<i>p</i>	$\eta_p^2$	Tukey post-hoc
Appraisal of others' emotions	11.155	.001	.058	U-17 > U-19, U-21 and 22+
Appraisal of own emotions	6.997	.001	.037	U-21 > U-17, U-19 and 22+
Emotion regulation	7.994	.001	.042	U-17 > U-19, U-21 and 22+
Social skills	22.037	.001	.108	U-17 > U-19, U-21 and 22+
Utilization of emotions	8.393	.001	.044	U-17 > U-19, U-21 and 22+
Emotional intelligence	16.918	.001	.085	U-17 > U-19, U-21 and 22+

**Table 2** The level of emotional intelligence of soccer players according to their playing position

Emotional intelligence sub-scale	<i>F</i> (3, 546)	<i>p</i>	$\eta_p^2$	Tukey post-hoc
Appraisal of others' emotions	3.639	.013	.020	Mid > Gk, Def and For
Appraisal of own emotions	1.418	.237	.010	
Emotion regulation	1.557	.199	.011	
Social skills	1.117	.342	.000	
Utilization of emotions	1.530	.206	.011	
Emotional intelligence	2.727	.043	.015	Mid > Gk, Def and For

Note. Gk = goalkeeper; Def = defender; Mid = midfielder; For = forward.

psychological demands, their findings are not generalized with the soccer players.

Successful performance in a team sport is a various combination of variables such as physical, physiological and psychological responses. Furthermore, in soccer, it is well known that evaluating the soccer-specific requirements of soccer players according to different playing levels, playing position and age categories might provide detailed information in order to prepare them for higher playing levels in their career (Nikolaidis et al., 2014; Stølen et al., 2005). In accordance with many previous studies in soccer literature, our players were divided into four main groups according to their playing positions (Gil et al., 2007; Hazir, 2010; Wong et al., 2009). One of the important findings of this study showed that the level of EI of midfielders was significantly higher compared with the other playing positions such as goalkeeper, defender and forwards. It is not easy to discuss our results with existing research due to the lack of research findings on this topic in the field of applied sports psychology. However, results from other fields of psychology and physiology may provide some evidence that could help to interpret our findings regarding EI, age and playing position in soccer.

Soccer players require well developed physical characteristics and also technical skills in order to perform high-intensity actions both with and without the ball. Therefore, it is widely accepted that the physical performance and technical activities of soccer players are closely related to their playing position in the team. In modern soccer, midfield players were shorter and lighter compared to the other positions and this is considered to provide an advantage for them to move more efficiently and cover longer distances on the pitch (Hazir, 2010). In addition, midfielders performed more high-intensity running than other playing position groups (Di Salvo et al., 2009). These characteristics allow them to be effective playmaker role, to deliver the ball to both sides of the pitch. In accordance with the results

from our study, a significant difference was found between the midfielder and the other group's characteristics in terms of the appraisal of others' emotions and EI. It is important that the high technical skills and decision-making ability of midfielders might be determined and affected by the score of the match. Decision making has complex cognitive skills and the quality of decision making is a key determinant of successful sports performance (Raab & Johnson, 2004; Taatgen, 2013). Furthermore, many studies have shown that emotions play important role in risk-related decision-making under pressure (Laborde et al., 2013; Panno et al., 2015). Therefore, team coaches should train especially midfielders who help both defender and forward to consistently coping with the stress, to increase attention and decision-making ability during both physical and mental training.

While some studies investigated the EI and age relationship in sedentary individuals (Bar-On & Parker, 2000; Goleman, 1996), another study examined the performance associated with the EI in athletes (Laborde et al., 2014). Therefore, there are many contradictory study results in the literature regarding the relationship between age and EI levels. Contrast to some studies (Dumčienė et al., 2020; Fariselli et al., 2008), another striking result from this study is that playing soccer in the lowest age-induced higher EI level compared with the other higher age levels similar with a few studies (Alumran & Punamäki, 2008). Except for physical performance and technical activities, the players' emotional intelligence might be an affecting and important factor in determining the quality of the game. In literature, numerous studies have associated with a higher level of EI and sports performance and high EI might provide an advantage for athletes in order to perform better performance (Crombie, Lombard, & Noakes, 2009; Laborde et al., 2011; Lane et al., 2010; Tok et al., 2013) and to use more effective coping strategies during competition (Laborde et al., 2014) and to use psychological skills (Lane Meyer, et al., 2009; Lane, Thelwell, et al., 2009). The

possible explanations for such different outcomes in literature might be explained by the different sports branches, sexes and age groups. In addition, from a practical point of view, a different type of measurement instruments based on different EI theory might be affecting the EI results in the literature. For example, previous studies supported that the younger athletes are more active, open-minded and also adaptive to problem-solving (Alumran & Punamäki, 2008; Seiffge-Krenke & Klessinger, 2000). Furthermore, the effects of EI on team sports such as cricket, basketball and hockey and individual sports like tennis and ballet dance are found very vary in the systematic review of EI in sport and physical activity (Laborde et al., 2016). Taking these results into consideration, we need more scientific researches to explore the connection between EI and sports performance in terms of age, sexes and sports branches.

There are several limitations of our study that should be taken into consideration before final conclusions are drawn. Firstly, we did not measure the athletics expertise and relative age of players. These might be affecting factors for the EI levels of players. Secondly, the EI may be affected by not only training experience, but also by current playing position. Therefore, future studies should be taken into consideration our study results. In addition, for further investigations, it would be interesting to divide into six groups for players according to playing positions. Therefore, our results might not be generalized for different age and sex group players. A major strength of this study is the large sample size.

## Conclusions

The present study gives an important contribution to the existing literature about EI, age and playing position of soccer players. The present study demonstrated that the level of EI in soccer players is affected by their age and playing positions. It is suggested that further research is required to investigate the combination of performance responses and EI. The EI training should be used in order to evaluate psychological responses related to physical and physiological demands in soccer players.

## Conflict of interest

The authors report no conflict of interest.

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