

Psychological Characteristics of Male Youth Soccer Players: Specificity of Mental Attributes According to Age Categories

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Abstract

The psychological development of youth soccer players is limitedly understood and demands alternatives to gain entry in order to assist young players reaching elite levels. Distinguishing features of expertise and identifying factors that influence the player progression is highly recommended. Moreover, predicting success in youth soccer is a challenge at any age. The aim of this study is to investigate selected psychological skills of youth male Tunisian soccer players in different age categories. This study examines differences of 180 male youth soccer players between the ages of 15 and 19 years and from different youth class divisions. The subjects are divided into two groups, namely; U19 (n = 90) and U17 (n = 90), and are compared with regard to twelve psychological skills measured by means of the Ottawa Mental Skills Assessment Tool-3 (OMSAT-3) of Durand Bush et al. (2001). A significant difference in psychological skills is found in the various psychological skills. At the overall sample, U19 soccer players consistently outperform the U17 in term of confidence, stress reaction, activation and relaxation. The U19 soccer players belonging to the 1st youth class score higher values than the U17, in term of goal setting, confidence, stress reaction, activation, relaxation, focus, refocus and imagery. The results of the study provide support for the hypothesis that age differences in terms of psychological skills exist. More specifically, statistical evidence suggests that youth soccer players can be differentiated as a function of psychological skill and age category on the team.

Keywords

Psychological Skills, Ottawa Mental Skills Assessment Tool-3 (OMSAT-3), Youth Soccer, Age Category, Youth Development

1. Introduction

Soccer performance during youth is sustained by a range of variables that are mostly controlled by the timing and tempo of physical growth and physiological maturation. The limited success of soccer development programmes is not surprising, as the model of soccer development is constructed on constantly changing base, focusing predominately on the physiological component and excluding the psychological development (Engebretsen, 2010; Malina, 2004, 2009; Michael, 2015).

Most studies have been focused on tactical knowledge and decision making (Abernethy, Baker, & Côté, 2005; Blomqvist, Vääntinen, & Luhtanen, 2005), with little interest on how such abilities can be developed. Furthermore, sports psychologists have promoted attention on developmental issues of soccer players who have been engaged in sport development stages, such as relative age effects, tactical and behavioral aspects (Laurin, Nicolas, & Lacassagne, 2008; Relvas, Richardson, Gilbourne, & Littlewood, 2010).

From early to late adolescence, the changes in how soccer players, behave, reason and feel can be even more important than their apparent physiological changes. During that period, they develop a stronger recognition of their own identity as players, and recognize a set of personal and moral values related to their sport's environment, with considerable changes in behaviors. There is evidence that soccer players in different age categories tend to have different psychological skill levels. Each of the distinct periods of adolescence development is recognized by the proficiency of new cognitive, emotional, psychological and behavioral skills.

Ribeiro et al. (2015) examined the imagery use of soccer goalkeepers based on different age groups. Results yielded that the U21 soccer players used imagery significantly less than their older counterparts. Taher et al. (2013) measured the functional capacities and the mental skills necessary for expertise of elite and sub elite youth soccer players. Players were classified according to their ages (U16, U15, U14 and U13). The results indicated significant differences between elite and sub-elite players in seven mental characteristics. Significant age differences were observed between U13, U14 and U16 elite and sub-elite players. The results suggested that psychological characteristics of young soccer players were relative to the different age's stages. Costa et al. (2010) analyzed the tactical behaviors of 300 youth soccer players from different age groups (U11, U13, U15, U17 and U20), who had performed 17,239 tactical actions. Three tactical measures were examined (number of tactical actions, efficiency of tactical behaviors and tactical performance indices). In conclusion, results indicated that as the age group increased, the players presented greater participation in the game, mostly through the performing of more tactical actions. The U17 and U20 groups expressed the biggest differences in the tactical performance indices. Regardless of the existing findings pertaining to diversity of psychological attributed in each age category, knowledge about psychological skills within soccer environment remained limited. The main cause was on the fact that the relative contribution of psychological skills in youth soccer development throughout early and late adolescence had received limited attention. Studies of psychological skills with different age groups were moderated and the variance observed between age groups had been limited. Significant differences in mental skills were observed mostly when the age difference was large. Rare research had been directed making it difficult to observe congruent conclusions and indicating that more research on this topic was necessary.

Research findings on this topic from other sporting codes will be outlined. Yadav et al. (2012) assessed specific psychological skills of 120 male basketball players based on different levels of achievement (Senior, Junior and Youth National). Senior players outperformed junior and youth players in specific psychological skills. Junior players outperformed youth players in specific psychological skills and significant differences were found between senior and junior, and senior and youth players in coping with adversity and peaking under pressure. Significant differences were also found among senior and junior, senior and youth, and junior and youth players in goal setting, mental preparation, concentration and freedom from worry, confidence, achievement motivation and coachability. McCarthy et al. (2010) explained that in general, younger athletes have limited use of psychological skills compared to older ones. Munroe-Chandler et al. (2012), Thomas et al. (1999) reported that older athletes used less cognitive skills specifically imagery than young athletes but it was also reported that older athletes used less activation strategies and more automaticity than the younger ones. Young athletes encounter psychological and emotional changes as they mature in sport (Wiese-Bjornstal, LaVoi, & Omli, 2009). Holland et al. (2010), supported the idea and admitted that during the specialization phase, athletes (13 - 17 years), may be at their ideal state to develop the psychological attributes detained by the older ones (Holland et al., 2010).

Based on current evidences, it is clear that age differences do exist with regard to psychological skills among athletes from various sporting codes. The question whether or not such differences exist among soccer players

remains. To the best of our knowledge, the Arabic scientific literatures have not yet present consistent studies which investigated into the psychological profile of Arabic youth soccer players. Therefore, the aim of this study is to investigate selected psychological skills of youth soccer players in different age categories. It was hypothesized that this study could provide useful insights into identifying age-specific psychological characteristics for the purpose of enhancing the psychological skills training programmes in youth soccer.

2. Material and Methods

This study was part of a larger research programme investigating selected psychological skills among athletes from various age categories, sports divisions and playing positions. The current study focused on the differences of psychological skills among footballers from various age categories.

2.1. Participants

The sample consisted of male Tunisian youth soccer players ($n = 180$). The ages of the players ranged between 15 and 19 years. Half of the players had been playing in famous clubs with larger budgets and more elaborate facilities and at a very top division (youth class 1). The other half of the players had been playing in clubs with moderate budgets and facilities and at a moderate division (youth class 3). Players were divided into two youth class groups based on their primary age category during the season 2013-2014; U19 ($n = 90$ from 17 and 18 years old) and U17 ($n = 90$ from 15 and 16 years old).

2.2. Procedures

The coaches and managers of the participating teams were informed about the aim of the research project prior to the start of the season and were requested to participate. The testing took place during the start of the season. Players and/or their guardians signed a consent form and were free to withdraw their participation at any stage. They were informed about the nature and purpose of the study, data would be considered confidentially and strictly used for research purposes only. The subjects completed the Arabic version of OMSAT-3 of Durand Bush et al. (2001). The duration of testing was 30 to 45 minutes.

2.3. Measures

The OMSAT-3 included 48 items and 12 mental skill scales grouped under three major mental areas, each consisting of a number of mental skills: foundation skills (confidence, motivation and goal setting), psychosomatic skills (stress reaction, fear control, relaxation and activation) and cognitive skills (focusing, refocusing, imagery, mental practice and competition planification). The athlete's response is given on a 7-point Likert type scale ranging from "Strongly disagree" [1] to "Strongly agree" [7]. The score is seen as a high value when it is 6 or 7, medium or moderate between 3 to 5 and low if it is 1 or 2. Results of the OMSAT demonstrated high levels of internal consistency (alpha levels above 0.78), and acceptable levels of test-retest reliability (r levels above 0.63). Overall, the OMSAT appears to provide a potentially useful assessment and diagnostic tool for both understanding, and potentially, counselling athletes of different ability levels.

2.4. Statistical Procedures

Various statistical parameters were calculated using the software "IBM SPSS Statistics 21". Multivariate analysis of variance (MANOVA) was used in order to determine whether multiple levels of our independent variables on their own or in combination with one another have an effect on the dependent variables. The independent variables are the age categories divided into two modalities; Junior A (U19) and Junior B (U17) and two environmental categories are defined; 1st youth class and 3rd youth class. The dependent variables are the mental skills expressed through scores of The Ottawa Mental Assessment Skills Test 4 (OMSAT-3) and subdivided into three subscales; basic skills (goal setting, confidence and motivation), psychosomatic skills (stress reaction, fear control, relaxation and activation) and cognitive skills (focus, refocus, imagery, mental practice and competition planification). Descriptive statistics (mean and standard deviation) were examined. For all statistical analyses, $p \leq 0.05$ was adopted as the significance level and *ns* corresponded to no significance. Effect size was calculated with Wilks' *s Lambda Distribution*, to consider significance of results and to report only significant interactions. *df*, corresponds to degrees of freedom. *F Value* is the F statistic associated with the given source and *F (df1 and*

*df*₂) Value lists the degrees of freedom used in determining the F statistic. η^2_p is the second estimate of effect size. η^2_p is very useful in comparing the strength of association between independent and dependent variables that excludes variance from other factors.

3. Results

The purpose of this study was to investigate selected psychological skills of youth soccer players in different age categories. More specifically; it aimed to determine the extent to which these factors differentiate between youth class categories and players positions. **Tables 1-3** report on the comparisons between the different variables (age category, team classes and players' positions,) and psychological skills.

Statistically significant differences were found between the two age categories in the basic skills (Wilks' Lamda = .945, $F_{1,178} = 3.395$, $p < .05$, $\eta^2_p = 0.055$) and the psychosomatic skills (Wilks' Lamda = 0.915, $F_{1,178} = 4.057$, $p < 0.05$, $\eta^2_p = 0.085$) (**Table 1**). Follow-up tests on each dependent factor, applying Bonferroni adjustment, indicated significant differences in the following factors; confidence ($F_{1,178} = 10.020$, $p < 0.05$, $\eta^2_p = 0.053$), stress reaction ($F_{1,178} = 6.015$, $p < 0.05$, $\eta^2_p = 0.033$), relaxation ($F_{1,178} = 5.348$, $p < 0.05$, $\eta^2_p = 0.029$) and activation ($F_{1,178} = 12.427$, $p < 0.05$, $\eta^2_p = 0.065$). U19 showed higher mean values on confidence, stress reaction, relaxation and activation than U17. There were not significant differences between the two groups in the basic skill goal setting and motivation. No significant differences were found between the two groups in the psychosomatic skills, fear control. There were not significant differences between the two age categories in the cognitive skills of the OMSAT (Wilks' Lamda = 0.945, $F_{1,178} = 2.015$ *ns*).

In 1st Youth Class group (**Table 2**). Statistically significant differences were found between the two age categories in the basic skills (Wilks' Lamda = .880, $F_{1,188} = 3.895$, $p < 0.05$, $\eta^2_p = 0.120$), the psychosomatic skills (Wilks' Lamda = .822, $F_{1,188} = 4.603$, $p < 0.05$, $\eta^2_p = 0.178$) and the cognitive skills (Wilks' Lamda = .857, $F_{1,88} = 2.804$, $p < 0.05$, $\eta^2_p = 0.143$). Follow-up tests on each dependent factor, applying Bonferroni adjustment, indicated significant differences in the following factors; goal setting ($F_{1,188} = 4.445$, $p < 0.05$, $\eta^2_p = 0.048$) and confidence ($F_{1,188} = 11.505$, $p < 0.05$, $\eta^2_p = 0.116$), stress reaction ($F_{1,88} = 11.373$, $p < 0.05$, $\eta^2_p = 0.114$), relaxation ($F_{1,88} = 4.591$, $p < 0.05$, $\eta^2_p = 0.050$) and activation ($F_{1,88} = 11.951$, $p < 0.05$, $\eta^2_p = 0.120$), focusing ($F_{1,88} = 9.894$, $p < 0.05$, $\eta^2_p = 0.101$), refocusing ($F_{1,88} = 5.345$, $p < 0.05$, $\eta^2_p = 0.057$), and mental imagery ($F_{1,88} = 4.106$, $p < 0.05$, $\eta^2_p = 0.045$). U19 showed higher mean values on confidence, stress reaction, relaxation and activation, focusing, refocusing and mental imagery than U17. There were not significant differences between the two groups in the basic skill motivation. No significant differences were found between the two groups in the psychosomatic skills fear control. There were not significant differences between the two age categories in the cognitive skills mental practice and competition planification.

In 3rd Youth Class group (**Table 3**). No significant differences between the three playing positions in the basic

Table 1. Means (M), standard deviations (SD) in the subscale of the OMSAT 3 based on athletes age categories.

OMSAT-3 Subscales	U19 (n = 90) M ± SD	U17 (n = 90) M ± SD
Goal setting	6.09 ± 0.80	5.89 ± 0.80
Confidence	6.22 ± 0.81 ^o	5.76 ± 1.08
Motivation	6.43 ± 0.67	6.29 ± 0.69
Stress reaction	5.02 ± 0.94 ^o	4.67 ± 1.00
Fear control	4.30 ± 1.22	4.05 ± 1.17
Relaxation	5.20 ± 1.02 ^o	4.91 ± 1.01
Activation	5.60 ± 0.94 ^o	5.10 ± 0.96
Focusing	5.67 ± 0.83	5.26 ± 1.00
Refocusing	5.14 ± 0.96	4.94 ± 1.12
Imagery	5.55 ± 1.17	5.30 ± 1.33
Mental practice	5.51 ± 1.22	5.21 ± 1.44
Competition planification	6.03 ± 0.89	5.73 ± 1.00

^oSignificantly higher than U17, ^{*}Significantly higher than U19.

Table 2. Means (M), Standard Deviations (SD) in the subscale of the OMSAT 3 based on based on youth class 1 Athletes' age categories.

OMSAT-3 Subscales	U19 (n = 45) M ± SD	U17 (n = 45) M ± SD
Goal setting	6.18 ± 0.71 ^o	5.85 ± 7.40
Confidence	6.33 ± 0.69 ^o	5.60 ± 1.26
Motivation	6.48 ± 0.61	6.28 ± 0.76
Stress reaction	5.01 ± 1.00 ^o	4.36 ± 0.82
Fear control	4.27 ± 1.29	3.96 ± 1.23
Relaxation	5.48 ± 0.93 ^o	5.02 ± 1.07
Activation	5.64 ± 0.87 ^o	4.94 ± 1.02
Focusing	5.69 ± 0.76 ^o	5.05 ± 1.14
Refocusing	5.12 ± 0.84 ^o	4.65 ± 1.09
Imagery	5.73 ± 1.10 ^o	5.19 ± 1.39
Mental practice	5.55 ± 1.26	5.17 ± 1.52
Competition planification	6.05 ± 0.89	5.67 ± 1.11

^oSignificantly higher than U17, *Significantly higher than U19.

Table 3. Means (M), Standard Deviations (SD) in the subscale of the OMSAT 3 based on based on youth class 3 Athletes' age categories.

OMSAT-3 Subscales	U19 (n = 45) M ± SD	U17 (n = 45) M ± SD
Goal setting	5.99 ± 0.88	5.93 ± 0.86
Confidence	6.10 ± 0.92	5.92 ± 0.85
Motivation	6.38 ± 0.73	6.30 ± 6.67
Stress reaction	5.04 ± 0.89	4.97 ± 1.08
Fear control	4.34 ± 1.17	4.14 ± 1.12
Relaxation	5.04 ± 1.08	4.80 ± 0.95
Activation	5.56 ± 1.03	5.26 ± 0.83
Focusing	5.65 ± 0.90	5.47 ± 0.80
Refocusing	5.15 ± 1.08	5.23 ± 1.09
Imagery	5.37 ± 1.22	5.40 ± 1.29
Mental practice	5.47 ± 1.19	5.25 ± 1.38
Competition planification	6.02 ± 0.90	5.80 ± 0.89

^oSignificantly higher than U17, *Significantly higher than U19.

skills (Wilks' Lamda = 0.989, $F_{1, 88} = 0.305$, *ns*), the psychosomatic skills of the OMSAT (Wilks' Lamda = 0.963, $F_{1, 88} = 0.822$, *ns*) and the cognitive skills (Wilks' Lamda = 0.941, $F_{1, 88} = 1.055$, *ns*) were observed.

4. Discussion

The purpose of the study was to investigate selected psychological skills of youth soccer players in two different age categories. The most consistent observation of this investigation was difference in psychological skills exists between U19 and U17 regardless of Youth class. The result showed that, the sample group U19 exhibited the highest values, when compared to the sample group U17, in four of the 12 tested mental skill subscales (confidence, stress reaction, relaxation and activation). In the sample group of 1st youth class (players playing soccer in famous clubs with larger budgets and more elaborate facilities and at a very top division), U19 showed high values when compared to the U17, in eight of the 12 tested mental skill subscales (goal setting, confidence, stress reaction, relaxation, activation, focusing, refocusing and mental imagery). In the sample group of 3rd youth class (players playing soccer in clubs with moderate budgets and facilities and at a moderate division), no

significant difference were observed between U19 and U17.

Working with youth soccer players requires knowledge of the inherent variability in adolescent development that will impact the implementation of training program. Having stated the influence of age on physiological changes in performances, age was also shown to affect psychological skills of youth soccer players. Physical, tactical and psychological aspects within U19 soccer players are well established. The primary objective training is geared towards performance optimization and the need for talent maximization through high level competitions becomes essential in order to develop consistency. Within the category U17, the load of trainings and competitions increased gradually as well as the development of motor, emotional and cognitive skills (Debois, 2010).

While it appears in some research mentioned, that some components of cognitive skill emerge relatively early in development, the skill to accurately “read the play” in sport may not develop until much later. Comparably to our study, Abernethy (1988) examined the development of anticipatory skill in badminton players of ages 12, 15, and 18 years. Although the ability of experts to utilize advance cues improved with age, skill-based differences in anticipatory performance were not evident until adulthood. Paul et al. (2013) explored the relationship between emotions, cognitive interference, concentration disruption and performance in youth sport. The study showed that anxiety and dejection were associated with more interfering thoughts and greater disruptions in concentration, whereas the effects of anger and happiness on interfering thoughts differed relative to the age of participants. Anger was associated with more interfering thoughts only in younger athletes and happiness was associated with fewer interfering thoughts only in older athletes (Paul et al., 2013). McCarthy et al. (2010) explained that, in general, youth players have fewer approximations of the use of psychological competence compared to older ones. Holland et al. (2010), supported this view by admitting that athletes specialization phase (about 13 - 17 years), may be the ideal “window of opportunity” for the development of detainees attributes by an adult athlete (Holland et al., 2010).

Our results support these observations and converge with other results, such us the study of Taher et al. (2013). Taher (2013) measured functional abilities and mental capacities of the teenager soccer players (elite and sub-elite) and tried to identify important factors in the talent selection process. Participants were classified into four groups (U16, U15, U14 and U13). The OMSAT-3 was used to assess mental skills. The results showed a significant difference between the elite and sub-elite players in seven mental characteristics. Also, significant differences were observed between the elite and sub-elite players within U13, U14 and U16 age groups. These results showed that psychological characteristics differed at different ages and that the measures of mental skills at an age younger than 13 and 14 years old could help in the selection process, but the functional capabilities should be established for the U15 and U16 age groups (Taher et al., 2013).

The presence of significant differences in the 1st division but not at the level of the 3rd division can be explained by the quality of the sport environment and performance development strategies. The study of Ward & Williams (2003) supports our observations. The purpose of their study was to examine how the visual, perceptual and cognitive skills were developed according to the age and skills in football. A secondary objective was to determine possible differences between age groups. 137 participants were classified into elite group and sub-elite competitive and based on the categorical level of their clubs. In conclusion, the study suggests that elite soccer players were showing a greater degree of perceptual and cognitive situation, from an earlier age than sub-elite soccer players. Perceptual-cognitive competence indicated that from an early age (9 years), the elite players can actually use and integrate contextual information with expectations stored in the memory, which systematically differ from those of sub-elites (Ward et al., 2003).

Corrado et al. (2014) examined the possible differences in attention and mental skills according to the athlete’s sport experience. 47 sub-elite juniors, aged between 15 and 18 years ($M = 15.77$, $SD = 0.84$) and 43 top players of elite rugby, aged between 20 and 37 years ($M = 26.40$, $SD = 4.88$), participated in the study. The researchers measured the concentration of attention and mental skills using a short version of the test of attention and interpersonal styles and psychological inventory performance in sport. The results showed significant differences between groups of different ages the existence of more functional psychological profiles for older and experienced groups. The data suggest that attentional skills increase with experience (Corrado et al., 2014).

5. Conclusion

In conclusion, this investigation provides support for the hypothesis that age differences in term of psychological skills exist. More specifically, evidence is provided that suggests that athletes in youth Tunisian soccer can

be differentiated as a function of psychological skill and the age category that they belong to in the team. Certain limitations of this study should be kept in mind when ensuing further research. The results of this study are based upon youth soccer players' population consisting of 180 participants. Caution should therefore be applied when generalizing these results to other soccer playing populations. Future studies should be more specific in term of age categories and should consider other particular categories. It is also very important to recognize that age is a proxy variable (Hartmann & George, 1999). It does not cause development, but simply explain the fact that a person exists for a certain amount of time. As researchers, when we find a difference between age groups on specific variable, we need to investigate the causes of the difference. Age differences are a significant component of what psychologists examine but the real concern lies in examining what mechanisms may cause developmental change and, thus, performance differences between age groups.

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