



Emotional Intelligence: A Systematic Comparison Between Young Athletes and Non-athletes, Gender and Age Groups

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Abstract

Background: Emotional intelligence (EI) and emotional competence (EC) are considered as multidimensional strategies for dealing with various complex situations. There are conflicting results regarding the effect of age, gender and sports status on EI and EC dimensions.

Objectives: In the present study, we compared the EI between young athletes and non-athletes, as well as in terms of both genders and different age groups

Methods: Four hundred seventy-nine young individuals (239 athletes, 240 non-athletes) aged 12 - 18 years old participated in this study. They were classified according to their age (12 - 15 years and 16 - 18 years) and gender (239 male, 240 female). All participants completed the Profile of Emotional Competence (PEC); for assessing the intra- and interpersonal EC and global EI.

Results: Athletes had significantly higher values of global EI and altogether the intra- and interpersonal EC dimensions (all, $P < 0.001$). The comparison between genre and age groups highlighted those males and younger participants showed significantly higher components for both inter- and intrapersonal EC and global EI than females and older participants respectively ($0.05 < P < 0.001$).

Conclusions: Based on the result of the current study, we conclude that engagement and involvement in sports can be considered as a key factor for developing adequate EI. Psychologists and sport-scientists need to be aware about the specific-related psychological skills for both age and gender requirements, particularly EI.

Keywords: Emotion, Intelligence, Gender, Age, Sport Status

1. Background

In the last years, the concept of emotional intelligence or EI has garnered increasing attention from the scholarly community for its implication and involvement in various aspects of daily life, from mental and physical health to social, academic and workplace functioning (1-3).

This growing body of research has shown that EI is not a monolithic concept but can be subdivided into further constructs and categories, to better capture its complex, multi-faceted nature. For instance, “emotional self-efficacy” or “trait EI” regards emotion-related traits and self-perceived skills assessed by means of self-report

questionnaires, whereas “cognitive-emotional ability” or “ability EI” refers to actual emotion-related skills measured by carrying out maximum-performance tests. Emotional intelligence, as a skill, is the ability to adequately identify, infer, understand and convey emotions (emotional knowledge). In other words, it is the array of skills necessary to produce feelings that can mediate thoughts, and the abilities to finely tune and modulate emotions in order to favor the achievement of both intellectual and emotional growth (4).

In the last decades, researchers such as Mayer et al. have further refined and expanded this concept

(5), defining EI as the group of abilities that enable to effectively utilize the available emotional data and information for processing and reasoning about one's own and others' feelings. Various psychometric tools enable researchers to assess and quantify ability EI, including the "Multi Factor Emotional Intelligence Scale" (MEIS), the "Mayer-Salovey-Caruso Emotional Intelligence Test" (MSCIET) developed by Mayer et al. (6) and the "Profile of Emotional Competence" (PEC) developed by Brasseur et al. (7). However, since EI is, as previously mentioned, a complex, multi-dimensional construct, these questionnaires assess the same concept, EI, but from the perspective of various dimensions.

Previously published investigations have explored the differences in emotional ability based on an array of variables, like socio-demographic parameters, including gender, ethnic factors, and age (8-10). For instance, some researchers showed women to be superior in EI with respect to men (8, 10-13). However, contrasting findings about the specific EI dimensions on which women were found to over-perform have also been described. Some investigations have found gender-related differences in perception and emotional facilitation and other experiential aspects of EI (8, 14, 15), while others have reported gender-related differences in strategic aspects of EI such as understanding and coping with emotions and feelings (14, 16). Another study has found women to be superior on various EI aspects (from perception, to facilitation, comprehension/understanding and total score of the tool) (17). Further, a fourth group of studies has reported women to over-perform on all dimensions of EI (10, 13, 18, 19). Despite some conflicting results, where differences have emerged, they generally tend to favor women. Similar contradictions have been found concerning age-related differences in EI. Some investigations have found that older subjects tend to perform better on all the dimensions of EI, with correlation coefficients varying from $r = 0.10$ to $r = 0.30$ (10, 11). Other studies have reported statistically significant correlations in EI except for aspects like perception and emotional facilitation (8, 16), or they have not found any significant associations between age and EI dimensions (14). Differently, other investigations have found a negative correlation between age and emotional perception (13, 18), a finding that is in line with a meta-analysis showing that older people encounter more difficulties than their younger counterparts in properly identifying emotions (20). Moreover, EI appears to differ significantly between athletes and non-athletes. Previous studies of ability EI using tools such as the Bar-On Emotional Quotient Inventory (EQ-I) (21) or Schutte Self Report Inventory (SSRI) (22) have reported athletes to perform significantly better

than their non-athlete counterparts (22-24). For instance, the majority of previous studies have studied EI using the MSCEIT, according to gender and age in adult (aged 18 - 76 years old) university students, making them poorly representative of the general athletes' population. Studies investigating EI in athletes are limited (23, 25-27), with EI differences between genders and age groups not having been thoroughly investigated.

The above-mentioned research that has been here briefly overviewed has focused primarily on samples from European and North American settings. These findings cannot be generalized to a North African context given the influence that culture has on the learning, interpretation, exploration and expression of emotions. Exploring EI in a North African setting may help broadening the theoretical understanding of the construct. A thorough, in-depth analysis of EI-related differences between athletes and non-athletes, women and men, and various age groups may also help psychologists designing tailored interventions to allow North African people to develop culturally suitable EI skills.

2. Objectives

The major objectives of the present study were (1) to compare EI, as measured by means of the PEC (7), between athletes and non-athletes and (2) to investigate gender- and age-related differences in EI in a sample of young North-African participants.

3. Methods

3.1. Participants

Participants recruited were 479 (239 men, 240 women, representing 49.9% and 50.1% of the entire sample, respectively). Age was in the range of 12 - 18 years. Participants were prospectively classified and categorized into two groups: athletes ($n = 239$, 40.9% of the sample; they were physical education students with at least 5 years of continuous sporting activity in a discipline, such as karate, boxing, judo, tennis, or swimming) and non-athletes ($n = 240$, 50.1% of the sample; they were students with no sport background). Stratifying according to participants' age, 241 (50.3% of the sample) and 238 (49.7% of the sample) were aged 12 - 15 years and 16 - 18 years, respectively (Table 1).

3.2. Procedure

Participants were asked to attend two sessions, interspersed by 1 week. The first (control) session helped participants familiarizing with the psychometric tool,

Table 1. Descriptive Statistics of the Cohort Studied ^a

Parameter	Value
Age (y)	
12 -15	241 (50.3)
16 -18	238 (49.7)
Gender	
Male	239 (49.9)
Female	240 (50.1)
Profile of emotional competence	
Comprehension intrapersonal	3.37 ± 0.95
Comprehension interpersonal	3.17 ± 1.01
Expression intrapersonal	3.47 ± 0.99
Expression interpersonal	3.29 ± 1.07
Identification intrapersonal	3.31 ± 1.00
Identification interpersonal	3.60 ± 0.87
Regulation intrapersonal	3.59 ± 0.89
Regulation interpersonal	3.39 ± 0.90
Utilization intrapersonal	3.47 ± 0.90
Utilization interpersonal	3.57 ± 0.87
Intrapersonal	3.44 ± 0.76
Interpersonal	3.41 ± 0.74
Global	3.43 ± 0.72

^a Values are expressed as No. (%) or mean ± SD.

without collecting any data. During the second session, participants were asked to fill in the questionnaire during class time with the presence of a member of the research staff available to respond to any query and doubts. Twenty to 30 minutes were granted to participants to complete the questionnaires in a comfortable environment. Participants were thoroughly advised of their rights during the study, ensuring anonymity of results. No details about the objectives of the study were provided to the participants until after they completed the protocol, which had been reviewed and approved by the Ethic Committee of the National Centre of Medicine and Science in Sports of Tunisia, Tunis, before the beginning of the assessments. Each subject provided a signed informed, written consent before participating in the study.

3.3. Measures

3.3.1. Emotional Intelligence

The PEC was used to assess EI (7). Participants respond to the 50 items on the measure using a five-point Likert scale (from “strongly disagree” to “strongly agree”). The measuring tool was designed to evaluate the five core

emotional competences (EC) separately, distinctly for one’s own and others’ emotions. The measure is developed to assess intrapersonal EC (competences related to one’s own emotions) and interpersonal EC (competences related to other people’s emotions) separately and also produces a global EC score. Each factor comprises five core competencies: Namely, identification, comprehension, expression, regulation, and utilization of emotions. In addition, the PEC includes demographic information, such as age, sex, sport discipline, and sporting level.

3.4. Data Analysis

Descriptive statistics was performed, expressing main results as mean ± standard deviation and presented in Table 1. The normality assumption was verified by carrying out the Kolmogorov-Smirnov test. Unpaired Student’s *t*-tests were employed to compare observations between groups. Reliability and validity of the questionnaire was calculated by computing the Cronbach’s alpha (both unadjusted and adjusted based on the number of items). The following criteria were utilized for interpreting the coefficient: excellent with α equal or greater than 0.9, good in the range 0.8-0.9, acceptable in the range 0.7-0.8, questionable in the range 0.6-0.7, poor in the range 0.5-0.6, and unacceptable if less than 0.5. A three-factor analysis of variance (ANOVA) was used to compare among the different groups in terms of athlete status, age and gender. Pearson’s correlations were conducted to determine the relationship between EI dimensions.

All statistical analyses were performed by means of the commercial software “Statistical Package for Social Sciences” (SPSS version 13.0, for Windows, IBM Inc., Chicago, IL, USA), and the statistical significance threshold was set at *p*-values equal to or less than 0.05.

4. Results

4.1. Validity and Internal Consistency of Study Items

Regarding the internal consistency of items relating to the ten dimensions of PEC, Cronbach’s alpha resulted excellent (unadjusted $\alpha = 0.930$, adjusted $\alpha = 0.928$). Concerning each sub-scale, Cronbach’s alpha ranged from 0.515 (for utilization inter-personal) to 0.711 (for expression inter-personal). Concerning the different domains, coefficient was 0.862 for inter-personal and 0.881 for intra-personal (Table 2).

4.2. Correlation Between All EI Dimensions

Pearson correlation showed significant correlations between all dimensions with *p*-value <0.001. Coefficients ranged from 0.160 to 0.962 (Table 3).

Table 2. Cronbach's Alpha for Each Sub-scale and Domain

Sub-scale	Cronbach's Alpha
Identification interpersonal	0.538
Identification intrapersonal	0.682
Comprehension interpersonal	0.621
Comprehension intrapersonal	0.638
Expression interpersonal	0.711
Expression intrapersonal	0.685
Regulation interpersonal	0.494
Regulation intrapersonal	0.587
Utilization interpersonal	0.515
Utilization intrapersonal	0.553
Interpersonal	0.862
Intrapersonal	0.881
Global	0.930

4.3. Emotional Intelligence Between Athletes and Non-athletes, Genders and Age Groups

Results indicated that intra- (identification, comprehension/understanding, expression, regulation, and utilization) and interpersonal (identification, comprehension/understanding, expression, regulation, and utilization) EC were more developed among athletes than among non-athletes across the entire sample (all $P < 0.001$; Table 4).

Concerning the inter-personal domain, athlete status was highly statistically significant for each component ($P < 0.001$). Gender was significant only for the comprehension sub-scale ($P = 0.04$), whereas the age effect was statistically significant ($P < 0.001$) for each component except for regulation ($P = 0.39$). The interaction athlete status \times gender was not significant for utilization ($P = 0.17$), whereas the interaction athlete status \times age did not achieve statistical significance for regulation ($P = 0.43$). Concerning the interaction gender \times age, the sub-scales expression ($P = 0.17$), regulation ($P = 0.43$), and utilization ($P = 0.85$) were not significant. Finally, the interaction athlete status \times gender \times age was always significant, except for regulation ($P = 0.09$). More details are shown in Table 5.

Concerning the intra-personal domain, athlete status was always highly statistically significant ($P < 0.001$), whereas the gender effect achieved statistical significance only for the utilization component ($P = 0.03$). Age was always statistically significant, except for utilization ($P = 0.07$). The interaction athlete status \times gender was not significant for regulation and utilization ($P = 0.06$ and $P = 0.11$, respectively), whereas the interaction athlete status \times age was significant for all components. The

interaction gender \times age yielded borderline results for identification ($P = 0.05$) and comprehension components ($P = 0.07$), whereas it was not significant for regulation and utilization ($P = 0.18$ and $P = 0.19$, respectively). Finally, the interaction athlete status \times gender \times age was significant for all components. For further details, the reader is referred to Table 6.

Results showed that comprehension ($P = 0.04$) and utilization ($P < 0.03$) components of inter- and intrapersonal domains, respectively, were higher in males than females disregarding the athlete status and for any age (Table 7). There were no other statistically significant differences between males and females in terms concerning the other EC components ($P > 0.5$).

Results showed that every EC component except interpersonal regulation and intrapersonal utilization was statistically more developed among younger (12 - 15 years) than among older participants (16 - 18 years) in a statistically significant at P -value < 0.001 , disregarding the athlete status or the gender (Table 8).

Global ($P < 0.001$), inter- ($P < 0.001$) and intra-personal ($P < 0.001$) EC were higher among athletes than among non-athletes. A similar statistical pattern could be detected for younger (12-15 years) versus older participants (16 - 18 years). However, no significant differences between males and females in global ($P = 0.14$), inter- ($P = 0.11$) and intra-personal ($P = 0.24$) EI. Concerning the interactions athlete status \times gender and athlete status \times age, these were highly statistically significant ($P < 0.001$ for global, inter- and intra-personal EC), as well as the interaction athlete status \times gender \times age. The interaction gender \times age was significant for global ($P = 0.03$), inter- ($P = 0.04$) and intra-personal ($P = 0.04$) EC (Table 9).

5. Discussion

To the best of our knowledge, this is the first investigation that systematically compared the EI, assessed using the PEC inventory, between athletes and non-athletes. It is also the first to examine genders and age groups differences, as well as their interactions, within athletic and non-athletic populations. Finally, this study was novel in examining a Tunisian sample. The main findings of the present investigation showed a statistically significant difference between athletes and non-athletes, and between younger (12 - 15 years) and older participants (16 - 18 years), but not between males and females, in most of the factors in the intra- and interpersonal EC and global EI.

Table 3. Pearson's Correlation Between the Different Sub-scales. All Correlations Resulted Statistically Significant with P-Value < 0.001

Sub-scale	I Inter	I Intra	C Inter	C Intra	E Inter	E Intra	R Inter	R Intra	U Inter	U Intra	Inter	Intra	Global
I inter	1												
I intra	0.626	1											
C inter	0.587	0.666	1										
C intra	0.659	0.722	0.690	1									
E inter	0.715	0.699	0.677	0.735	1								
E intra	0.642	0.748	0.660	0.741	0.705	1							
R inter	0.423	0.507	0.423	0.493	0.487	0.448	1						
R intra	0.623	0.600	0.437	0.602	0.607	0.586	0.449	1					
U inter	0.549	0.497	0.415	0.446	0.535	0.476	0.304	0.504	1				
U intra	0.309	0.340	0.160	0.330	0.332	0.301	0.409	0.457	0.308	1			
Inter	0.833	0.771	0.807	0.780	0.886	0.755	0.669	0.668	0.706	0.384	1		
Intra	0.719	0.864	0.664	0.857	0.776	0.856	0.578	0.807	0.560	0.597	0.846	1	
Global	0.807	0.851	0.764	0.852	0.864	0.839	0.649	0.769	0.658	0.512	0.960	0.962	1

Abbreviations: I inter, identification interpersonal; I intra, identification interpersonal; C inter, comprehension interpersonal; C intra, comprehension interpersonal; E inter, expression interpersonal; E intra, expression interpersonal; R inter, regulation interpersonal; R intra, regulation interpersonal; U inter, utilization interpersonal; U intra, utilization interpersonal

Table 4. Comparison of Emotional Competence Between Athletes and Non-athletes. All Comparisons Resulted Statistically Significant with a P-Value Less Than 0.001^a

Sub-scale/domain	Athletes	Non-athletes
Interpersonal		
Identification	3.88 ± 0.70	3.33 ± 0.94
Comprehension	3.50 ± 0.91	2.85 ± 1.01
Expression	3.73 ± 0.89	2.86 ± 1.07
Regulation	3.66 ± 0.84	3.13 ± 0.87
Utilization	3.90 ± 0.68	3.24 ± 0.91
Global	3.73 ± 0.64	3.08 ± 0.69
Intrapersonal		
Identification	3.79 ± 0.81	2.84 ± 0.95
Comprehension	3.72 ± 0.85	3.02 ± 0.92
Expression	3.89 ± 0.78	3.06 ± 1.01
Regulation	3.92 ± 0.67	3.27 ± 0.96
Utilization	3.69 ± 0.80	3.26 ± 0.95
Global	3.80 ± 0.60	3.09 ± 0.73
Global	3.77 ± 0.60	3.08 ± 0.67

^a Values are expressed as mean ± SD.

5.1. Emotional Intelligence Between Athletes and Non-athletes

The present study showed that athletes had significant differences in all of the factors in the intra- (identification, comprehension, expression, regulation, and utilization of emotions) and interpersonal EC (identification,

comprehension, expression, regulation, and utilization of emotions) compared to non-athletes and global inter-and intrapersonal EC and EI. Accordingly, previous study showed significant differences between athletes and non-athletes in some alternative EI components, such as, happiness, stress tolerance and self-assertiveness (24, 28). Costarelli and Stamou (23), and Castro-Sánchez et al. (22) reported that the athletes had higher levels of EI compared to the non-athletes, particularly in factors such as assertiveness, flexibility and coping with stress and anxiety. The differences were more marked in the female athletes with respect to non-athletes, with statistically significant differences in most factors of the intrapersonal scale, including self-regard, self-actualization, adjustability, and most of the general mood scale factors (23). Zamanian et al. (29) showed that the subscales of problem solving, happiness, independence, stress control, self-actualization, emotional self-awareness, interpersonal relationship, optimism, self-regard, impulse control, and empathy were significantly in athletes than non-athletes. The higher EI score in athletes than non-athletes can be explained though athletes needing to constantly monitor and cope with their emotions under different stressful training and competition conditions. Emotional self-regulation is a hallmark of optimal sporting performance. This suggests that active engagement and involvement in sports and physical activities can be extremely helpful in developing EI and strengthening some skills such as,

Table 5. Interpersonal Emotional Competence According to Gender, Age and Between Athletes and Non-athletes ^a

	12 -15 Years	16 -18 Years	Effects				Interactions		
			AS (Athletes vs Non-athletes)	Genre	Age	AS*G	AS*A	G*A	AS*G*A
Identification			F = 71,75; P < 0.000; $\eta^2 = 0.13$	F = 0.13; P = 0.72; $\eta^2 = 0.00$	F = 69,87; P < 0.000; $\eta^2 = 0.13$	F = 15,84; P < 0.000; $\eta^2 = 0.03$	F = 55,95; P < 0.000; $\eta^2 = 0.11$	F = 4,45; P = 0.04; $\eta^2 = 0.01$	F = 13,32; P < 0.000; $\eta^2 = 0.03$
Athletes									
Males	3.84 ± 0.70	3.68 ± 0.75							
Females	3.98 ± 0.55	4.02 ± 0.76							
Non-athletes									
Males	3.80 ± 0.76	3.14 ± 0.75							
Females	3.89 ± 0.76	2.47 ± 0.72							
Comprehension			F = 61,37; P < 0.000; $\eta^2 = 0.12$	F = 4,41; P = 0.04; $\eta^2 = 0.01$	F = 19,52; P < 0.000; $\eta^2 = 0.04$	F = 26,29; P < 0.000; $\eta^2 = 0.05$	F = 4,34; P = 0.04; $\eta^2 = 0.01$	F = 8,81; P = 0.003; $\eta^2 = 0.02$	F = 15,05; P < 0.000; $\eta^2 = 0.03$
Athletes									
Males	3.50 ± 0.94	3.24 ± 0.90							
Females	3.68 ± 0.99	3.56 ± 0.77							
Non-athletes									
Males	3.13 ± 0.74	3.16 ± 1.13							
Females	3.10 ± 0.88	2.01 ± 0.76							
Expression			F = 113,18; P < 0.000; $\eta^2 = 0.19$	F = 3,23; P = 0.07; $\eta^2 = 0.01$	F = 42,31; P < 0.000; $\eta^2 = 0.08$	F = 27,00; P < 0.000; $\eta^2 = 0.05$	F = 25,35; P < 0.000; $\eta^2 = 0.05$	F = 8,88; P = 0.017; $\eta^2 = 0.02$	F = 8,08; P = 0.005; $\eta^2 = 0.02$
Athletes									
Males	3.71 ± 0.89	3.47 ± 0.90							
Females	3.86 ± 0.83	3.86 ± 0.88							
Non-athletes									
Males	3.44 ± 0.89	2.85 ± 0.92							
Females	3.22 ± 0.95	1.94 ± 0.84							
Regulation									
Athletes			F = 46,60; P < 0.000; $\eta^2 = 0.09$	F = 0,93; P = 0.32; $\eta^2 = 0.00$	F = 0,73; P = 0.39; $\eta^2 = 0.00$	F = 7,90; P = 0.005; $\eta^2 = 0.02$	F = 0,64; P = 0.43; $\eta^2 = 0.00$	F = 0,63; P = 0.43; $\eta^2 = 0.00$	F = 2,94; P = 0.09; $\eta^2 = 0.01$
Males	3.56 ± 0.92	3.62 ± 0.80							
Females	3.63 ± 0.72	3.83 ± 0.90							
Non-athletes									
Males	3.18 ± 0.90	3.38 ± 0.57							
Females	3.08 ± 1.02	2.89 ± 0.87							
Utilization			F = 94,63; P < 0.000; $\eta^2 = 0.17$	F = 0,10; P = 0.76; $\eta^2 = 0.00$	F = 45,98; P < 0.000; $\eta^2 = 0.09$	F = 2,46; P = 0.17; $\eta^2 = 0.01$	F = 36,17; P < 0.000; $\eta^2 = 0.07$	F = 0,04; P = 0.85; $\eta^2 = 0.00$	F = 5,69; P = 0.02; $\eta^2 = 0.01$
Athletes									
Males	3.95 ± 0.68	3.75 ± 0.69							
Females	3.89 ± 0.63	3.99 ± 0.71							
Non-athletes									
Males	3.65 ± 1.02	2.95 ± 0.64							
Females	3.69 ± 0.88	2.65 ± 0.59							

Abbreviations: AS, athlete status; A, age; G, gender

^a Values are expressed as mean ± SD.

Table 6. Intrapersonal Emotional Competence According to Gender, Age and Between Athletes and Non-athletes ^a

	12 - 15 Years	16 - 18 Years	Effects				Interactions		
			AS (Athletes vs Non-athletes)	Genre	Age	AS*G	AS*A	G*A	AS*G*A
Identification			F=166.95; P<0.000; $\eta^2 = 0.26$	F=3.39; P=0.07; $\eta^2 = 0.01$	F=20.23; P<0.000; $\eta^2 = 0.04$	F=34.76; P<0.000; $\eta^2 = 0.07$	F=12.89; P<0.000; $\eta^2 = 0.03$	F=3.82; P=0.05; $\eta^2 = 0.01$	F=15.53; P<0.000; $\eta^2 = 0.30$
Athletes									
Males	3.75 ± 0.92	3.54 ± 0.77							
Females	3.90 ± 0.74	3.98 ± 0.73							
Non-athletes									
Males	3.20 ± 0.84	3.04 ± 0.91							
Females	3.07 ± 0.76	2.03 ± 0.80							
Comprehension			F=83.87; P<0.000; $\eta^2 = 0.15$	F=1.39; P=0.24; $\eta^2 = 0.00$	F=14.21; P<0.000; $\eta^2 = 0.03$	F=28.08; P<0.000; $\eta^2 = 0.06$	F=18.50; P<0.000; $\eta^2 = 0.04$	F=3.35; P=0.07; $\eta^2 = 0.01$	F=12.88; P<0.000; $\eta^2 = 0.03$
Athletes									
Males	3.52 ± 0.83	3.42 ± 0.91							
Females	3.87 ± 0.81	4.05 ± 0.72							
Non-athletes									
Males	3.28 ± 0.80	3.08 ± 0.91							
Females	3.38 ± 0.89	2.36 ± 0.73							
Expression			F=123.80; P<0.000; $\eta^2 = 0.21$	F=0.05; P=0.81; $\eta^2 = 0.00$	F=29.27; P<0.000; $\eta^2 = 0.06$	F=15.90; P<0.000; $\eta^2 = 0.03$	F=20.98; P<0.000; $\eta^2 = 0.04$	F=16.60; P<0.000; $\eta^2 = 0.03$	F=18.35; P<0.000; $\eta^2 = 0.04$
Athletes									
Males	3.79 ± 0.82	3.71 ± 0.78							
Females	4.06 ± 0.80	4.01 ± 0.70							
Non-athletes									
Males	3.28 ± 0.76	3.15 ± 1.01							
Females	3.59 ± 0.76	2.21 ± 0.92							
Regulation			F=89.39; P<0.000; $\eta^2 = 0.16$	F=1.39; P=0.24; $\eta^2 = 0.00$	F=38.79; P<0.000; $\eta^2 = 0.08$	F=3.50; P=0.06; $\eta^2 = 0.01$	F=40.97; P<0.000; $\eta^2 = 0.08$	F=1.71; P=0.18; $\eta^2 = 0.00$	F=10.22; P=0.001; $\eta^2 = 0.02$
Athletes									
Males	3.96 ± 0.58	3.84 ± 0.68							
Females	3.87 ± 0.69	4.02 ± 0.71							
Non-athletes									
Males	3.65 ± 0.90	3.09 ± 0.68							
Females	3.75 ± 0.93	2.56 ± 0.83							
Utilization			F=30.70; P<0.000; $\eta^2 = 0.06$	F=5.05; P=0.03; $\eta^2 = 0.01$	F=3.41; P=0.07; $\eta^2 = 0.01$	F=2.45; P=0.11; $\eta^2 = 0.01$	F=12.17; P=0.001; $\eta^2 = 0.03$	F=1.67; P=0.19; $\eta^2 = 0.00$	F=4.89; P=0.03; $\eta^2 = 0.01$
Athletes									
Males	3.64 ± 0.61	3.79 ± 0.70							
Females	3.32 ± 0.94	4.01 ± 0.76							
Non-athletes									
Males	3.43 ± 0.85	3.38 ± 0.85							
Females	3.21 ± 1.01	3.01 ± 1.02							

Abbreviations: AS, athlete status; A, age; G, gender
^a Values are expressed as mean ± SD.

Table 7. Comparison of Emotional Competence Between Males and Females

Sub-scale/Domain	Males	Females
Interpersonal		
Identification	3.62 ± 0.79	3.59 ± 0.95
Comprehension ^b	3.26 ± 0.94	3.09 ± 1.07
Expression	3.37 ± 0.95	3.22 ± 1.17
Regulation	3.43 ± 0.83	3.36 ± 0.96
Utilization	3.58 ± 0.86	3.56 ± 0.89
Global	3.45 ± 0.64	3.36 ± 0.83
Intrapersonal		
Identification	3.38 ± 0.90	3.25 ± 1.09
Comprehension	3.32 ± 0.87	3.41 ± 1.03
Expression	3.48 ± 0.88	3.47 ± 1.09
Regulation	3.64 ± 0.79	3.55 ± 0.98
Utilization ^b	3.56 ± 0.77	3.38 ± 1.01
Global	3.48 ± 0.63	3.41 ± 0.86
Global	3.46 ± 0.60	3.39 ± 0.82

^a Values are expressed as mean ± SD.

^b Significant difference at $P < 0.05$

Table 8. Comparison of Emotional Competence Between Age Groups. All Comparisons Were Statistically Significant at P -Value < 0.001 Except Regulation Interpersonal and Utilization Intrapersonal^a

Sub-scale/Domain	12 - 15 Years	16 - 18 Years
Interpersonal		
Identification	3.88 ± 0.70	3.33 ± 0.94
Comprehension	3.35 ± 0.92	2.99 ± 1.07
Expression	3.56 ± 0.92	3.03 ± 1.14
Regulation	3.36 ± 0.92	3.43 ± 0.87
Utilization	3.80 ± 0.82	3.34 ± 0.86
Global	3.57 ± 0.58	3.31 ± 0.88
Intrapersonal		
Identification	3.48 ± 0.89	3.15 ± 1.08
Comprehension	3.51 ± 0.86	3.23 ± 1.02
Expression	3.68 ± 0.83	3.27 ± 1.10
Regulation	3.81 ± 0.79	3.38 ± 0.93
Utilization	3.40 ± 0.88	3.54 ± 0.92
Global	3.59 ± 0.59	3.22 ± 0.83
Global	3.58 ± 0.54	3.27 ± 0.84

^a Values are expressed as mean ± SD.

identification, comprehension, regulation, expression, and utilization of one's own and others' emotions. Li et al. (30) found that university students engaged in exercises and physical activities displayed higher total EI and composite subscale scores for intrapersonal, interpersonal, stress management, general mood and adaptability, compared to the students in the insufficient physical activity and inactive groups.

5.2. Emotional Intelligence Between Males and Females

The current study showed that scores in the factors of inter- and intrapersonal EC did not differ between males and females, except for comprehension and utilization, being higher among males. Accordingly, males were found to score slightly higher on intrapersonal dimensions than women (31, 32), probably because men perceive themselves more emotionally intelligent than women. Furthermore, no significant differences between males and females in global inter- and intrapersonal and global EI could be found. In contrast, most studies of EI have shown women to be superior in emotional abilities (8, 10-13). In this view, some studies reported neuro-anatomical differences, showing that some areas of the brain, which are implicated in processing emotions can be greater in women than in men (33) and that there is a gender-related difference in cerebral activity (34). The contradiction between the current findings and previous work can be explained by the different age and populations sampled. It seems that young males had slightly higher EI than females, even though not statistically significant. This would help better understanding the meaning of gender-related differences in terms of EI and suggest the design and implementation of appropriate measures for enhancing EI in men and women.

5.3. Emotional Intelligence According to the Age of Participants

The main results of the current investigation show significant age-related differences on global inter- and intrapersonal EC and EI and most EI factors: inter- (identification, comprehension, expression, utilization) and intrapersonal (identification, comprehension, expression, regulation) with younger ages reporting higher levels. Similar findings have been obtained and described in previously published studies (35-37). In contrast, Extremera et al. (10) showed that EI increased with age. Alumran (38) reported that age was not significantly associated with EI. The previous studies included heterogeneous groups in terms of age and this could explain, at least partially, why some studies were able to find age-related differences on EI scores and others failed to replicate such results.

5.4. Conclusions

The present study showed that, in a Tunisian sample, EI differed according to gender and age of participants as well as between athletes and non-athletes. Psychologists should be aware of these specific gender- and age-related differences in terms of EI. The current study also confirmed that, since sport and exercise participation at the college level can be an effective way for students to effectively

Table 9. Summary Scores According to Gender, Age and Between Athletes and Non-athletes.

	12 - 15 Years	16 - 18 Years	Effects			Interactions			
			AS (Athletes vs Non-athletes)	Genre	Age	AS*G	AS*A	G*A	AS*G*A
Interpersonal			F = 143.51; P < 0.000; $\eta^2 = 0.23$	F = 2.62; P = 0.11; $\eta^2 = 0.01$	F = 45.56; P < 0.000; $\eta^2 = 0.09$	F = 27.67; P < 0.000; $\eta^2 = 0.06$	F = 32.20; P < 0.000; $\eta^2 = 0.06$	F = 4.37; P = 0.04; $\eta^2 = 0.01$	F = 15.92; P < 0.000; $\eta^2 = 0.03$
Athletes									
Males	3.71 ± 0.68	3.55 ± 0.65							
Females	3.81 ± 0.55	3.85 ± 0.66							
Non-athletes									
Males	3.44 ± 0.49	3.09 ± 0.59							
Females	3.40 ± 0.54	2.39 ± 0.58							
Intrapersonal			F = 167.29; P < 0.000; $\eta^2 = 0.26$	F = 1.36; P = 0.24; $\eta^2 = 0.00$	F = 22.57; P < 0.000; $\eta^2 = 0.05$	F = 25.27; P < 0.000; $\eta^2 = 0.05$	F = 35.73; P < 0.000; $\eta^2 = 0.07$	F = 4.39; P = 0.04; $\eta^2 = 0.01$	F = 21.44; P < 0.000; $\eta^2 = 0.04$
Athletes									
Males	3.73 ± 0.57	3.66 ± 0.63							
Females	3.80 ± 0.57	4.01 ± 0.59							
Non-athletes									
Males	3.37 ± 0.49	3.15 ± 0.67							
Females	3.40 ± 0.58	2.43 ± 0.72							
Global			F = 176.21; P < 0.000; $\eta^2 = 0.27$	F = 2.19; P = 0.14; $\eta^2 = 0.01$	F = 37.41; P < 0.000; $\eta^2 = 0.07$	F = 30.01; P < 0.000; $\eta^2 = 0.06$	F = 38.53; P < 0.000; $\eta^2 = 0.08$	F = 4.97; P = 0.03; $\eta^2 = 0.01$	F = 21.11; P < 0.000; $\eta^2 = 0.04$
Athletes									
Males	3.72 ± 0.61	3.61 ± 0.61							
Females	3.81 ± 0.54	3.93 ± 0.61							
Non-athletes									
Males	3.40 ± 0.41	3.12 ± 0.60							
Females	3.40 ± 0.45	2.41 ± 0.63							

Abbreviations: AS, athlete status; A, age; G, gender
^a Values are expressed as mean ± SD.

express and manage EI, its importance should be encouraged and implemented.

Footnotes

Authors' Contribution: Conceptualization: H. A.; methodology: H. A. and M. S.; software: M. S., H. G. and N. L. B.; validation: A. E.; formal analysis: H. A., M. S., H. G., H. Z., S. H. and N. L. B.; investigation: H. A.; resources: H. A.; data curation: H. A.; writing/original draft preparation: H. A., M. S., H. G., H. Z., D. T., S. H., N. L. B. and A. E.; writing/review and editing: H. A., M. S., H. G., H. Z., D. T., S. H., N. L. B. and A. E.; project administration: M. S. and A. E.; funding acquisition: N. L. B. All authors have read and agreed to the published version of the manuscript.

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