

ORIGINAL SCIENTIFIC PAPER

Research of Emotional Intelligence as a Psychological Resource of an Athlete

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Abstract

Emotional intelligence (EI) is an important part of the psychology of an athlete and must be considered when a training programme is being devised. The aim of this research is to determine the impact of physical activity on the EI level among youth; examine the extent to which EI and sports achievements is correlated; consider the discrepancies between EI indicators within athletes in different sport disciplines. The EI of 245 young people aged 17-19 was studied. 125 of them were athletes who were systematically engaged in sports and competitions for 3½ years. The remaining 120 were not engaged in any sport. The research is based on the methodology that Nelson-Hall devised to assess EI. It also uses various methods of mathematical statistical analysis, such as Student's t-test. The extent of the EI in young athletes was significantly higher than that in their peers who had not done any sports. In a group of athletes differences were found in EI components between athletes of different sport disciplines. This was shown in the indices of emotional management, self-motivation and in the extent to which they were aware of other people's emotions. The research showed that athletes with higher levels of emotional management tend to achieve better results than those with lower emotional management abilities. It is likely that this observation will hold true for athletes from across the broad spectrum of sporting ability.

Keywords: *emotional intelligence, psychological resource, athletes, non-athletes*

Introduction

Modern research into psychological training in sports raises the issue of how an athlete's psychology can be used as a resource (Arnautova & Petrovska 2019; Fletcher & Sarkar, 2012). Another issue is the need to consider the personal qualities of the person who coaches the athlete (Balogh & Trzaskoma-Bicsérdy, 2020; Petrovska, 2020).

The need to counteract the wide range of stress factors that often arise during training and competition presents a range of challenges that an athlete's character must overcome (Grin, 2009). For example, athletes can only obtain good results in sport by adapting to high training loads and to constant competition. This demands a complex set of personal resources and qualities in an athlete (Kovryga, 2003).

Theoretical analysis offers many insights into how best to form and shape the personal resources of an athlete. The literature on the subject is extensive and much of it is overlapping. Nevertheless, it seems from the writings that there are four main resources. They are motivational (Nicholls, Morley, & Perry, 2015); cognitive (Kolosov, 2006 Cowden, Fuller, & Anshel, 2014); behavioural (Nicholls et al., 2015); and emotional (Fletcher & Sarkar, 2012; Galli & Gonzalez, 2015). Emotional stability, confidence and motivation, dedication, optimism, and the ability to control aggression (Petrovska, 2020); anxiety (Cejudo, Rodrigo-Ruiz, López-Delgado, & Losada, 2018); the ability to concentrate and high self-esteem (Sakal & Petrovska, 1999); and the importance of having a stable psychological profile (Arnautova & Petrovska, 2019) are closely linked to or



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are subsets of the four main resources.

In essence the literature on the subject stresses the need for careful research into the psychological resources of an athlete. It also argues that those resources will differ from one athlete to another. The versatile use of the emotional resource capabilities of an athlete's psyche effectively increases their ability to embody their sports potential in competitions (Galli & Gonzalez, 2015). Harnessing EI has the potential for improving an athlete's emotional resources (Petrovskaya, 2014; Castro-Sánchez, Zurita-Ortega, Chacón-Cuberos, López-Gutiérrez, & Zafra-Santos, 2018).

The aim was to determine the impact of physical activity on the level of EI among youth; establish the correlation between the level of EI and sports achievements; and examine the discrepancy between EI indicators within athletes in different sports disciplines.

Methods

Its scope covered 245 young people (120 males and 125 females) aged 17-19. 125 of them (64 males and 61 females) were systematically engaged in sports for 3½ years (athletes). The remaining 120 (56 males and 64 females) were not engaged in any sport (non-athletes). Athletes group comprised of the players from Table tennis (12); Sprints (23); Football (33); Wrestling (19) and Volleyball (38).

The study was conducted by Bukovinian State Medical University, Yu. Fedkovich Chernivtsi National University, Chernivtsi regional sports school and Youth Sports School No. 1 in Chernivtsi.

It uses the methodology Nelson-Hall devised to diagnose EI. It also uses various methods of mathematical statistical analysis, such as Student's t-test. The Shapiro-Wilk W test was used in testing for normality. As the Integrative EI Index was normally distributed the Student's t-test was used in comparing Athletes and Non-Athletes.

Using the method of statistical grouping based typical indicators students were divided into two main groupings: 'athletes' and 'non-athletes'. The 'athletes' group consisted of the following subgroups: team contact sports (football), team non-contact sports (volleyball), individual contact sports (wrestling), individual non-contact sports (table tennis), cyclic sports (track and field athletic, and sprint). Based on the results of the athletes' performance in competitions, the 'athletes' group was further divided into two sub-groups: 'prize winners' (21 athletes) and 'non-prize winners' (104 athletes).

All athletes aged 18 or over gave their consent to the data being used for scientific research according to the recommendations of the biomedical research ethics committee. For those students who were aged under 18, consent was given by their parents or guardians.

Results

Statistics proves that there was a correlation between the EI level and physical activity. Table 1 shows the significant discrepancy between the level of the EI of athletes and non-athletes (p<0.001).

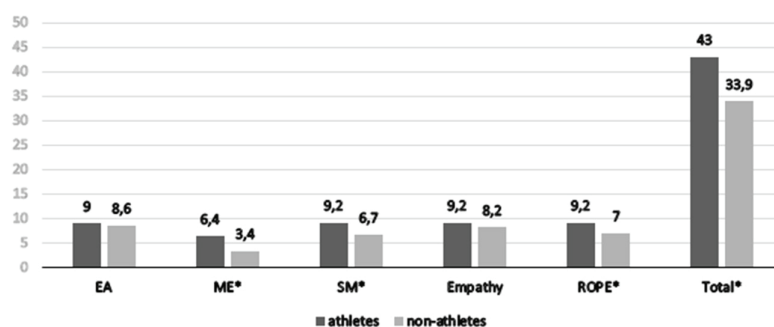
Table 1. The Integrative EI Index of Athletes and Non-Athletes

Indices	Athletes	Not athletes
Number of subjects (n)	125	120
Mean (x̄)	43.024	33.875
Standard error (SE)	1.6296	1.5356
Standard deviation (SD)	19.074	16.822
T score for the mean difference		
t-test (Student's test) for the mean difference	t=3.99, p=0.000089	
Critical value of t for p=0.05 and n=245	3.34	
Error probability	p<0.001	

Our research shows that participation in sport plays a key role in helping to shape an athlete's psychological profile. To examine and describe the differences between 'athletes' and 'non-athletes' we analysed the indices of EI components (Figure 1). The level of EI components on each scale correlates with the results they achieved: 14 or more - High; 8-13 - Medi-

um; 7 or less - Low. The integrative index of EI with the dominant sign determined the following quantitative indicators: 70 or more - High; 40-69 - Medium; 39 or less - Low.

A significant difference was found in the following components: managing emotions (ME), self-motivation (SM), and recognition other people's emotions (ROPE). No significant



Legend: EA - emotional awareness; ME - managing emotions; SM - self-motivation; ROPE - recognition the of other people's emotions; *=significance ≤ 0.001

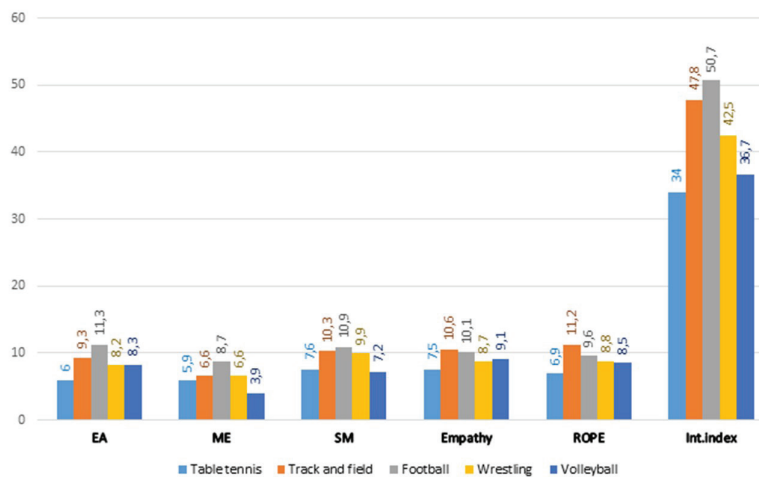
FIGURE 1. EI components of "athletes" and "non-athletes"

difference was observed in the emotional awareness (EA) and empathy scales.

Sports activities promote the development of the following EI components: managing your own emotions, self-motivation, and recognition of other people's emotions. These components form the psychological resource of an athlete.

Our study involved representatives of five sports. Consequently, the 'athletes' group was divided into the following sub-groups: team contact sports (football), team non-contact sports (volleyball), individual contact sports (wrestling), individual non-contact sports (table tennis), cyclic sports (track and field athletic, and sprint). We investigated whether the EI indices of athletes representing different sports vary and how the specifics of the different sports affect the development of the EI integrative index as well as its components.

As the sub-groups representing different sports contained only a small number of athletes, it was not possible to determine statistically whether there is significant difference in the EI indicators of athletes within different sports. The means for each group, however, allowed us to comment on some trends noticed. The research showed that football players, short distance runners e.g., sprinters, and wrestlers have an integrative index of emotional intelligence that is at the 'medium' level and that table tennis and volleyball players have a lower integrative index. This can be explained by the differences in the physical distance between competitors. In essence, it seems that physical contact in sport stimulates the development of EI in general. As Figure 2 shows, football players have the highest position on the EI integrative index, sprinters and wrestlers occupy the middle position, and volleyball and table tennis occupy the lowest position.



Legend: Int.index - Integrative index

FIGURE 2. EI components indices of athletes in different sports

Footballers have the highest indices of most EI components. Their scores in emotional awareness and emotion management are much higher than those obtained by athletes in other sports.

In our study, we tried to determine whether success in sports activities depends on the level of development of EI, and if so, what component of EI is crucial for success in sport. Since it is difficult to assess the level of success in different sports for different competitions, we took the results of the athletes' performance in competitions (namely, victory in the competition) as a criterion that would standardise our assess-

ment of the athlete's success. To conduct our analysis, all athletes who participated in the study were divided into two sub-groups: 'prize winners' (21 athletes) and 'non-prize winners' (104 athletes).

The integrative index of EI in the sub-group of 'prize winners' is higher than the same index in the 'non-prize winners', but the difference that was found is not statistically significant. The difference in the indices of EI components in the studied samples is also statistically unreliable. Therefore, we cannot say that success in sports depends on the level of development of EI. However, we did identify certain trends (shown in Figure 3).

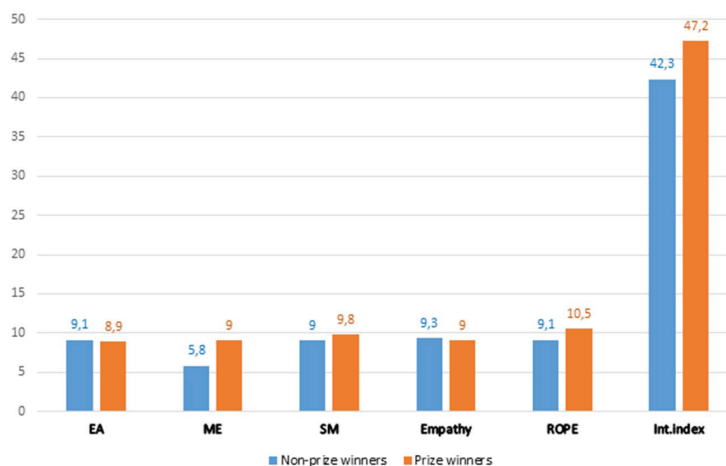


FIGURE 3. Indices of components of EI in athletes with different qualifications

The rate of development of emotional awareness and empathy in the sub-group of 'non-prize winners' was higher than in the sub-group of 'prize winners', but the opposite trend is observed for other components of EI. Most of all, the above sub-groups differ according to the index of managing their own emotions. Here the difference in indices reached almost 30%, while the difference between the indices of other components did not exceed 10%.

Discussion

The subject of EI arises at the intersection between the psychology of thinking and the psychology of emotions. More research is needed to understand the interaction between these mental processes and the impact this interaction has on the functioning of the individual. The most recognized model of EI in behavioural science has four components. They are awareness of emotions; the ability to manage emotions; recognition of other people's emotions; and an individual's ability to establish and maintain relationships with people (Goleman, 2005). Leading researchers in this field agree that the general essence of EI is the ability to understand and manage your own emotions and those of other people (Lysin, 2004). These components belong to two main components: personal and interpersonal.

The overwhelming majority of researchers think that success in an activity is dependent on the level of development of EI (Gorskaya & Grin, 2008). Individuals with highly developed EI are likely to achieve success in their careers than people with a low level of EI development (Bradberry, 2009). Scientists consider EI to be a type of information system that helps a person to adapt to the environment by helping a person to connect their intelligence with three key processes of human life. They are: internal information processes, experience, and interaction with the outside world (Mayer, Salovey, Caruso, & Cherkasskiy, 2011). It is only by considering EI as an additional information resource that an athlete can understand how the mechanisms of influence of EI can help them achieve success in competitive activities. Various studies (Petrovskaya, 2014; Fernández et al., 2019) have confirmed that an athlete's EI affects an athlete's ability to control the level of situational anxiety before he or her takes part in high level competitions. Similar results were obtained in a study of aggression. In that study aggression was significantly lower in elite athletes compared to non-elite ones (Petrovska, 2020). Important components of EI that affect the ability to regulate anxiety or aggression before competitions are: managing your own emotions,

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Conflict of Interest

The authors declare that there are no conflicts of interest.

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self-motivation, and the ability to read the emotions of other people and competitors in competitions.

Our research showed that sports activities contribute to the development of components of EI in young athletes. The components they helped develop were managing their own emotions, self-motivation, and recognition of other people's emotions. Such results are logical because both the training process and taking part in competitions in sports require high self-control over your own emotions. An athlete who is not able to control his own emotions cannot achieve high results. Equally important for an athlete, especially in sports games and martial arts, is the ability to recognise another person's emotions and the ability to resist. (Manko & Petrovska 2009). Very often, the success of a game or match, especially those that involve athletes of equal training and experience, depends on the ability to see and understand the emotional reaction of the opponent ahead of time and use the information received to win (Petrovska & Kulish, 2010).

Conclusions

The level of development of young athletes' emotional intelligence was significantly higher than that of their peers who were not engaged in any sport. According to the results of the analysis of the components of EI in a group of athletes, statistically significant differences were found in the indices of managing their own emotions, self-motivation and in recognition of other people's emotions. Thus, sports activities have a positive effect on the development of young people's EI.

The specifics of activities in various sports to a certain extent determine the peculiarities of the development of athletes' EI. The highest rates of emotional intelligence development were found in football players, followed by representatives of track and field and wrestling. Representatives of volleyball and table tennis have the lowest rates of EI development.

The study of the possible interaction between the level of athletes' EI and the result of their performance in competitions proved that the integrative index of EI in the sub-group of 'prize winners' is higher than the same index in the group of 'non-prize winners'. The difference revealed though is not statistically significant. The biggest difference between sub-groups of athletes is in terms of managing their own emotions. It enables us to assume that control over your own emotions is one of the factors that determine success in sports and can be considered as a component of the psychological resource of an athlete.

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