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Examination of “Pre-competition” anxiety levels, of mid-distance runners: A quantitative approach

Abstract: Mid-distance runners are subject to intense cognitive and somatic anxiety, not only during competition but also during practice. An important variable which may influence athletes' performance is perceived behavioral control on anxiety. The aim of the present study was to examine whether aspects such as sex, sport/competition experience and weekly practices, differentiated the participants respectively. The participants consisted of 110 athletes, 61 male and 49 female athletes, between the ages of 15 and 28 ($M=20.05$, $SD=2.82$). They all completed the Greek version of the “Pre-Race Questionnaire”. Results indicated differences between the less experienced and more experienced athletes in almost all factors of the questionnaire, for both sport/competition experience, and weekly practices. No gender differences were shown. Overall, results could help sport professionals such as coaches and the athletes themselves, become more familiar with the sport-specific psychological aspects involved in their unique sport.

Key words: perceived competence, previous performance, coaches' influence, external environment, target goal

Introduction

As mentioned by Cox (2006) anxiety is one of the many emotions that can arise as athlete's reaction in a competitive situation. Lazarus (2000) identified that anxiety is a feeling which is defined as addressing a precarious situation or existential threat. Indeed, anxiety as a feeling can be obtained after the evaluation and assessment of a person on how to handle a situation. The effects of anxiety as argued by Cox (2006) affect athletes regardless of gender and sport.

Lazarus (2000) significantly indicates that anxiety is ranked among other emotions that play an important role with their effect on athletic performance, such as anger, shame, relief and pride that can exert a strong influence on performance and for which he argues that they should be managed and categorized into positive and negative groups. So, the same researcher classified that these feelings, such as anxiety, should be considered primarily for their specific effects on performance, for example, while anger is often considered as a negative emotion, potentially it might affect performance positively (Robazza & Bortoli, 2007).

A very important finding is the fact that an environmental or competitive situation is not necessarily stressful by itself. According to Lazarus (2000)

a competitive situation can act as a stimulus to induce anxiety but if this situation will eventually cause anxiety, depends mainly on how the athlete perceives and interprets this situation. This finding is also one of the most basic principles that underline the multidimensional nature of anxiety (Lane & Terry, 2000).

When an athlete is confronted with a potentially stressful situation, he/she makes an assessment of the situation on two levels which include the main appraisal, (during which the athlete evaluates his/her interest on the situation) and the secondary appraisal (during which the athlete makes an estimation on his/her physical and psychological reserves in order to deal with the situation). Results from the two levels determine the degree to which will be determined if anxiety “appears” (Hanton, Thomas, & Maynard, 2004). It is therefore evident that anxiety is directly related to the individual's subjective perception of an event or situation.

Early researchers addressed multiple issues on the subject of sport specific approaches on anxiety such as the multidimensional theory (Martens, et al., 1990), the model of catastrophe (Hardy, 1990), the mental health model (Raglin, 2001), the reversal theory (Kerr, 1997), the directional approach (Jones, 1995), and the IZOF model (Hanin, 1997; 2000). More specifically, The Individual

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Zones of Optimal Functioning Model (Hanin, 1997; 2000) was developed in order to identify emotional states that effect successful and less successful performances of elite athletes. More specifically, five dimensions (form, intensity, content, time, context) are used in order to identify individually optimal and dysfunctional dynamics of performance (Robazza, Pellizzari, & Hanin, 2004).

The model explains the dynamics of emotion-performance relationships based on the descriptions of the athletes' subjective experiences. Because sport activity is repeatable and experiences such as anxiety may influence performance and may develop stable patterns of experiences such as trait anxiety. Very often athletes reflect upon their experiences in order to identify successful and unsuccessful performances (Nieuwenhuys, Hanin, & Bakker, 2008).

Mid-distance runners are subject of intense psychological and physical anxiety not only during competition but during practice, also (Jones, Swain, & Cale, 1990). In recent years, research related to competitive anxiety, adopted a multidimensional approach (Jones, Swain, & Cale, 1990; Jones, Hanton, & Swain, 1994; Martens, Burton, Vealey, Bump, & Smith, 1990; Bebetos, et al., 2013). An important variable which influences athlete's performance is anxiety's perceived behavioral control (Bebetos & Antoniou, 2012). On the other hand, research on the field of sport psychology, showed a positive relation between self-confidence and athletic performance, as well as a negative between self-confidence and cognitive anxiety (Martens et al., 1990; Jones et al., 1990; Rokka et al., 2009).

So in an effort to investigate the factors of multidimensional state anxiety, which affect mid-distance athletic performance, Jones, Swain and Cale (1990) created a similar questionnaire. The questionnaire examines how anxiety can affect certain race/competition situations that athletes might face. It consists of five factors: (a) perceived competence, (b) attitude toward previous performance, (c) position goal, (d) coaches' influence and (e) external environment. The results showed that cognitive anxiety can be predicted from the first three factors. Furthermore, research has supported the relationship between cognitive anxiety and self-confidence (greater cognitive anxiety, results to lesser self-confidence).

The aim of this study was to extend the research to an un-investigated sport such as mid-distance running in Greece, and to assess any psychological aspects that might differentiate the participants according to sex, sport/competition experience, and weekly practices. The researcher argued that the examination of sex sport/competition experience, and weekly practices differences would help in deciding whether variations in training of psychological skills maybe required.

Methods

Participants and Procedure

The participants consisted of 110 athletes, 61 male (55.5%) and 49 female (44.5%), between the ages of 15 and 28 ($M=20.05$, $SD=2.82$), during the National Mid-Distance Championship Races. More specifically, participants was

divided according to their sport/competition experience (yrs.), into 3 groups: a) from 3–5 $N=28$ (25.5%), b) from 6–7 $N=39$ (35.5%), and c) from 8-> $N=43$ (39.1). Additionally, it was divided according to their weekly practices: a) from 3–6, $N=33$ (30%), b) from 6–7 $N=26$ (23.6%), and c) from 8-> $N=51$ (46.4%).

Procedures and Instruments

The researcher used the Greek version (Arapoglou, et al., 2013) of the "Pre-Race Questionnaire" (Jones, Swain, & Cale, 1990). The questionnaire consists of 19 questions / 5 factors: (a) "Perceived Competence" (i.e. How do you feel you have been performing in training during the last 4 weeks?), (b) "Attitude toward Previous Performance" (i.e. How did you feel about your position in the last race), (c) "Position Goal" (i.e. To what degree do you think that you can achieve this goal?), (d) "Coach's Influence" (i.e. How do feel your coach has influenced your performance over the last 4 weeks?), and (e) "External Environment" (i.e. Are the track conditions suitable for you in this race?). All responses were rated on a 9-point Likert-type scale using bipolar adjectives as answers (i.e. 'very negative'-'very positive', 'yes'-'no', 'very disappointed'-'very satisfied', 'very difficult'-'very easy', 'not at all'-'very much so', and 'very bad'-'very well').

The participants completed the questionnaire one hour prior to competition as the original researchers mentioned (Jones et al., 1990).

Analysis

To investigate differences between sexes, sport/competition experience, and weekly practices for each factor of the questionnaire, Univariate analyses were conducted. The post hoc multiple comparisons Bonferroni test was used to define the statistically significant differences between groups.

Results

(A). Descriptive statistics were computed for all variables and are presented in Table 1. Cronbach coefficient α internal consistency values were: for "Perceived Competence" .87, for "Attitude toward Previous Performance" .95, for "Position Goal" .68, for "Coach's Influence" .91, and for "External Environment".74. The fact that the subscales contained a small number of questions, may account for the relatively low coefficients alpha of some of the subscales (Cronbach, 1951).

Table 1. Descriptive Statistics for all variables

Variables	M	SD
1) Perceived Competence	5.99	1.48
2) Attitude toward Previous Performance	5.82	1.91
3) Position Goal	5.02	1.66
4) Coach's Influence	6.22	2.24
5) External Environment	6.93	1.34

(B). Univariate analyses were conducted in order to find any *sport/competition experience* differences. The analyses revealed the following statistically significant differences: (1) For the variable of “Perceived Competence”: ($F_{2,109}= 14.3$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 3rd ($M=6.8$, $SD=1.31$), the 2nd ($M=5.7$, $SD=1.11$), and 1st group ($M=5.2$, $SD=1.56$). (2) For the variable “Attitude toward Previous Performance”: ($F_{2,109}= 6.5$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 3rd ($M=6.6$, $SD=1.70$), the 2nd ($M=5.3$, $SD=1.90$), and 1st group ($M=5.2$, $SD=1.87$). (3) For the variable “Position Goal”: ($F_{2,109}= 14.4$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 3rd ($M=5.8$, $SD=1.59$), the 2nd ($M=4.9$, $SD=1.17$), and 1st group ($M=3.9$, $SD=.32$). (4) For the variable “Coach’s Influence”: ($F_{2,109}= 5.9$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 1st group ($M=5.2$, $SD=.40$) and the 3rd ($M=7$, $SD=1.91$). (5) For the variable “External Environment”: ($F_{2,109}= 10.8$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 3rd ($M=7.5$, $SD=.99$), the 2nd ($M=6.8$, $SD=1.17$), and 1st group ($M=6.2$, $SD=1.59$).

(C). Univariate analyses were conducted in order to find any *weekly practices* differences. The analyses revealed the following statistically significant differences: (1) For the variable of “Perceived Competence”: ($F_{2,109}= 6.3$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 1st ($M=5.4$, $SD=1.71$), and 3rd group ($M=6.5$, $SD=1.48$). (2) For the variable “Attitude toward Previous Performance”: ($F_{2,109}= 4$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 1st ($M=5.1$, $SD=2.02$), and 3rd group ($M=6.3$, $SD=1.87$). (3) For the variable “Position Goal”: ($F_{2,109}= 8.2$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 1st ($M=4.2$, $SD=1.92$), and 3rd group ($M=5.6$, $SD=1.47$). (4) For the variable “External Environment”: ($F_{2,109}= 9.4$; $p < 0.05$). More specifically, the post hoc multiple comparisons Bonferroni test found the differences between the 1st ($M=6.2$, $SD=1.57$), and 3rd group ($M=7.4$, $SD=1.1$).

(D). No statistical significant differences among sexes were found.

Discussion

The aim of the study was to reveal any possible differences that differentiated mid-distance runners according to their sex, sport/competition experience, and weekly practices. To begin with, the results showed that, in the present study, the internal consistency supported the psychometric properties of the questionnaire.

Results also showed differences between the most experienced group with the lesser, ones. Experience

is presented as a key factor that affects positively many cognitive processes (i.e. perceived competence, attitude, position goal) (Bebetos & Antoniou, 2003; Bebetos, et al., 2013). Previous research identified the importance of experience, indicating that more experienced athletes cope better with aversive feelings and situations (Mahoney, 1989; Nideffer, 1993; Cox, 2006; Bebetos & Antoniou, 2003). It is also well known that elite sports are characterized by situational contexts that induce pronounced stress (Gould & Maynard, 2009; Holt & Dunn, 2004). Past research indicates that elite athletes in relation to non-elite ones are individuals that engage in two different types of appraisals according to the evaluation of these contexts, and take the “right” time the “right” decisions for the best possible outcome (Calmeiro, Tenenbaum, & Eccles, 2014).

Additionally, coach’s influence was also a factor where more experienced runners had higher scores than the least experienced ones. Previous research results agree that skilled athletes indicate and show closer, “tighter”, relationship(s) with their coaches (Kioumourtoglou, Tzetzis, Derri, & Michalopoulou, 1997; Bebetos & Antoniou, 2003; Jowett, 2006; Jowett, et al., 2005; Olympiou, Jowett, & Duda, 2008; Karamousalidis, et al., 2009). The research findings suggest that coaches’ positive behavior and reaction might minimize athletes’ competitive anxiety (Jones, 2007). Hollembeak and Amorose (2005) acknowledged that positive feedback improves the relationship between the players and the coaches, while the autocratic behavior affects negatively the relationship. Positive feedback influences the ability, the efforts and the performance of the players (Amorose & Smith, 2003). On the other hand, negative interaction between coaches and athletes, can lead to higher levels of stress and anxiety, even on critical issues such as moral matters and role ambiguity (Derri, Kioumourtoglou, & Tzetzis, 1998; Bebetos & Konstantoulas, 2006; Karamousalidis et al., 2010).

External environment might play an important role in an outcome of a race. Although research is very limited in this area, a study indicated the negative emotion was declined in triathletes and marathon runners while running outdoors on a campus area, but not while running indoors on a treadmill (Harte & Eifert, 1995). The participants perceived outdoor running as less strenuous than indoor running. Ceci and Hassmen (1991) found similar results pointing out that perceived exertion effects with middle aged men who ran with low intensity on a treadmill in a laboratory and on a smooth, outdoor track. Though the outdoor run generated higher heart rate, blood lactate levels and running pace, individuals did not perceive it as more strenuous than the indoor run.

A latest research concluded that experienced runners may focus on physiological states such as heart rate and perceived exertion more than the running environment at a given level of exertion. As a result, a focus on internal conditions, both physiological and psychological, can disallow attention to the external environment. Still, the expected differences in the preference indicate that runners were sensitive to differences between environments (Bodin

& Hartig, 2003). Past research mentioned that intensive endurance training for distance running, is associated with mood disturbances in the individuals who exhibited good mental health prior to training and racing (Raglin, et al., 1991). Hence, mood state profiles of endurance athletes are generally healthier than those of non-athletes (Raglin & Wilson, 2008). Similar results were revealed in the present study for the "weekly practices" factor. Athletes who practiced more, scored higher in almost all cognitive aspects of the questionnaire than the ones who practice the least (Bebetsos & Antoniou, 2003; 2012).

On the contrary, no sex differences were shown on any of the questionnaire's factors. Results have mentioned that possible psychological responses to intensive training do not significantly differentiate men and women athletes who are subjects to comparable training (Raglin, et al., 1991). Chiefly, in Greece both men and women mid-distance athletes practice on the same courts, the same days, mainly under the supervision of the same coaches. Moreover, mid-distance running is a highly adaptive sport. This adaptation procedure generally is unaffected of sex differences, so researchers assumed that this might be the reason. Previous studies on individual sports also support these findings (Bodin & Hartig, 2003; Skourtanioti & Bebetos, 2008).

Conclusion

Further research is needed to replicate and extend study findings, explore athletes' anxiety, coping skills, goals orientations, motivation, and performance, in order develop effective intervention strategies. In conclusion, a proper preparation of athletes and coaches with the help of sport psychologists, in order to control explain and understand the effect of their emotions to pursue success in sports, is necessary. Summarizing, authors believe that results of this study highlight the significance and importance of the questionnaire's factors upon athletic, sport and psychological performance of mid-distance runners in Greece, also.

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