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COPING STRATEGIES, MULTIDIMENSIONAL COMPETITIVE ANXIETY AND COGNITIVE THREAT APPRAISAL: DIFFERENCES ACROSS SEX, AGE AND TYPE OF SPORT

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Abstract The purpose of this study was to examine the levels of anxiety, threat perception, and the coping strategies used by Portuguese athletes, and to assess differences between athletes of different sexes, ages and sports. In this investigation there were 550 male and female participating athletes, aged between 15 and 35 years (19.8 ± 4.5), representing several individual and team sports. Subjects filled out the Portuguese versions of the Sport Anxiety Scale [34] and of the Brief COPE [4], as well as the Cognitive Appraisal Scale in Sport Competition – Threat Perception [9]. The results showed that all athletes experienced anxiety and threat perception, and used varied coping strategies, with a preference for adaptative strategies. Female athletes displayed higher levels of anxiety and threat perception, in addition to a greater use of diverse emotion- and problem-focused coping strategies; male athletes reported a greater substance abuse. Younger athletes seemed to use less efficacious coping strategies, and athletes from individual sports reported higher levels of anxiety, threat perception and venting of emotions; athletes from team sports reported a greater use of humor and substances.

Key words: Coping, anxiety, gender, age, type of sport

INTRODUCTION

From a historical perspective, researchers' interests in the field of competitive anxiety have been focused not only on the examination of its antecedents and temporal patterns, but also in the analysis of its consequences, especially with reference to the specification of the contribution of somatic and cognitive anxiety to athletes' sport performance. However, in the last decades, this attention has been transferred to other related aspects, such as the role of cognitive appraisal and coping processes in the experience of anxiety [13, 20].

Cognitive appraisal refers to the appraisal of the significance of what is happening for a person's well-being (i.e., the way people perceive, "see" and interpret the competitive situation) [23]. In competitive contexts, the cognitive appraisal of threat - which underpins stress perceptions and anxiety emotional reactions - has been in the origin of a growing number of investigations [e.g., 13, 14, 20]. Thus far, researchers have identified some constructs related with perceptions of threat in various competitive situations, namely ego concerns, fear of failure, feelings of incompetence and inadequacy, or fear of evaluation [19]. Additionally, it also seems clear that a threatening situation may comprise multidimensional characteristics, given that, in certain situations, a combination of multiple factors may instigate anxiety reactions [14].

Moreover, it is increasingly accepted that the impact of anxiety on sport performance depends largely on the coping strategies athletes use to manage stressful situations. Coping may be defined as "constantly changing cognitive and behavioral efforts to manage specific external and/ or internal demands that are appraised as taxing or exceeding the resources of the person" [24, p. 141]. Coping strategies have been typically categorized as problem-focused and emotion-focused. Specifically, problem-focused coping refers to cognitive and behavioral efforts aimed at identifying, solving, or minimizing the effects of a stressful relationship between the individual and the environment (i.e., a challenging, threatening or harmful situation) [23]. On the other hand, emotion-focused coping strategies are not intended to directly change the current situation, but mostly to regulate the emotional response to a problem, or decrease emotional distress [5, 24].

During the past years, researchers have sought to examine strategies athletes use to cope with stress in competitive situations. In general, these investigations have found that athletes employ a variety of coping strategies, often in combination, simultaneously trying to manage the person/ stressor environment

and to regulate distressing emotions [e.g., 8, 12, 17, 18, 21, 26, 27].

Despite the perceived importance of this area to the enhancement of athletic performance, few studies have simultaneously examined threat perception and coping strategies used by athletes in competitive situations. Thus, for research in this area to move forward, it is crucial to address the study of stress, anxiety and coping in distinct subgroups of athletes, analyzing the role of moderator variables such as sex, age, type of sport or competitive level, in ecologically valid sport settings. Moreover, considering that, generally, investigations in the domain of sport psychology study elite populations and/ or reduced samples [e.g., 17, 21, 25, 26, 27], which calls into question the generalization of results to the remaining population, research examining larger samples, with athletes of lesser ability and from different sports, could provide more comprehensive and generalizable information about the dynamic interdependencies between stress, anxiety and coping.

Based upon the above review, the purpose of this study was to examine anxiety, cognitive appraisal of threat and coping strategies used by athletes in stressful situations. A secondary purpose of this study was to explore gender, age, and type of sport differences in trait anxiety, cognitive appraisal of threat and coping strategies.

MATHERIALS AND METHODS

SAMPLES

The participants were 550 athletes (31.1% female and 68.9% male), aged between 15 and 35 years old (M=19.8±4.5), representing a variety of team and individual sports, specifically handball (23.9% female and 76.1% male), track and field (59.3% female and 40.7% male), basketball (18.9% female and 81.1% male), soccer (14.1% female and 85.9 male), artistic gymnastics (35.5% female and 64.7% male), rhythmic gymnastics (100% female), field hockey (31.6% female and 68.4% male), roller hockey (31.6% female and 68.4% male), swimming (33.3% female and 66.7% male), water polo (50% female and 50% male), rowing (34.8% female and 65.2% male), tennis (50% female and 50% male) and volleyball (50.8% female and 49.2% male).

INSTRUMENTATION AND PROCEDURE

The participants were given a battery of questionnaires comprising a section for the collection of demographic data, the Portuguese versions of the Sport Anxiety Scale [11] and of the Brief COPE [4], as well as the Cognitive Appraisal Scale in Sport Competition – Threat Perception [11].

The Portuguese version of the Sport Anxiety Scale [34] was translated and adapted by Cruz and Viana [11]. This scale is a multidimensional measure of trait anxiety and was designed to measure individual differences in cognitive and somatic anxiety experienced by athletes. It is composed of 21 items designed to reflect possible responses to competitive situations and yields a total score and three distinct subscale scores: (a) somatic anxiety (9 items; e.g., “My body feels tense.”); (b) worry (7 items; e.g., “I have self-doubts”); and (c) concentration disruption (5 items; e.g., “I have lapses of concentration during competition because of nervousness.”). For each item, the respondents rate how they feel before or during a competitive situation, on a four-point scale which ranges from (1) not at all to (4) very much so. Results in each subscale are obtained adding the respective items; a total score of competitive anxiety can be obtained summing the three subscales scores. Thus, Sport Anxiety Scale scores range from 9 to 36 in somatic anxiety subscale, 7 to 28 in worry scale and 5 to 20 in concentration disruption scale.

The Cognitive Appraisal Scale in Sport Competition – Threat Perception [11], was designed to assess primary cognitive appraisal, i.e., the individual's initial interpretations about what is at stake in competitive situations for the individual, and instigates stress and anxiety. This instrument is an adaptation of similar instruments used by Lazarus and colleagues in other contexts [24] and can be administered in a situational or dispositional format; in the present study, it was used in its dispositional version. The Cognitive Appraisal Scale is composed of 8 items and, for each item, respondents rate how each statement generally applies to each of them, on a five-point scale ranging from (1) not at all to (5) very much so. Hence, the total score ranges from 8 to 40. Higher scores reflect the tendency to appraise a competitive situation as more threatening or with higher levels of threat to the ego, self-esteem, or personal well-being generated by competition.

Brief $COPE_p$ [10], the Portuguese version of the Brief COPE [4] is an abbreviated inventory of coping responses. It is composed of 28 items, and yields 14 subscales with two items per scale: (a) acceptance (e.g., “I’ve been learning to live with it.”); (b) active coping (e.g., “I’ve been taking action to try to make the situation better”); (c) behavioral disengagement (e.g., “I’ve been giving up trying to deal with it.”); (d) denial (e.g., “I’ve been refusing to believe that it has happened.”); (e) humor (e.g., “I’ve been making jokes about it.”); (f) planning (e.g., “I’ve been thinking hard about what steps to take.”); (g) positive reframing (e.g., “I’ve been looking for something good in what is happening.”); (h) religion (e.g., “I’ve been praying or meditating.”); (i) self-blame (e.g., “I’ve been criticizing myself.”); (j) self-distraction (e.g., “I’ve been turning to work or other activities to take my mind off things”); (k) substance abuse (e.g., “I’ve been using alcohol or other drugs to help me get through it.”); (l) using emotional support (e.g., “I’ve been getting emotional support from others.”); (m) using instrumental support (e.g., “I’ve been getting help and advice from other

people."); and (n) venting (e.g., "I've been expressing my negative feelings."). Response choices ranged from (1) I didn't do this at all to (4) I did this a lot. Results in each subscale are obtained adding the respective item, thus ranging from 4 to 8 in each subscale. In the present study, Brief $COPE_p$ was administered in a dispositional response format, with the intention of assessing the coping style. The instructions for administration asked participants to recall how they usually responded to problematic and stressful situations in their sport experience.

STATISTICAL ANALYSIS

The statistical analysis was performed using the Statistical Package for Social Science (SPSS 15.0). Descriptive statistics were used to describe the basic features of the data in the present study. Additionally, with the intention of examining differences across sex, age and type of sport in anxiety, threat perception and coping strategies, the athletes were categorized as follows: (a) sex: masculine (n=371) and feminine (n=170); (b) age: senior (n=297) and junior/ juvenile (n=237); and (c) type of sport: individual (n=86) and collective (n=454). We submitted the data to separate multivariate analysis of variance (MANOVA's) procedures to determine whether there were significant differences between the groups differentiated by anxiety, threat perception and coping strategies.

However, we had previously examined the correlations between the dependent variables in order to detect the presence of multicollinearity. The results showed that, with the exception of the correlations between the total anxiety score and all the dimensions of anxiety ($r_{trait\ anxiety-\ worry}$=0.87; $r_{trait\ anxiety–\ concentration\ disruption}$=0.70; $r_{trait\ anxiety-\ somatic\ anxiety}$=0.82), the intercorrelations between the dependent variables were all below the recommendations of 0.70 outlined by Pedhazur [29]. Accordingly, we excluded the total anxiety score from the analysis, and conducted separate MANOVA's with each of the different anxiety dimensions, threat perception and coping strategies as dependent variables. The significance level was established at $p< 0.05$.

RESULTS AND DISCUSSION

The means and standard deviations for all the variables in this study are reported in Table 1.

In general, the levels of anxiety reported by athletes in the present study were similar to those found by Smith et al. [34] for North American high school and college students. However, Portuguese athletes reported lower levels on somatic anxiety and total anxiety scores.

With respect to the total score of threat perception, the results are slightly lower, but very similar to those obtained with Portuguese athletes in a variety of previous studies [e.g., 3, 32], suggesting that the way athletes interpret the competitive situation, namely its anticipated significance and consequences, plays an important and non-neglectable role in competitive anxiety and, ultimately, in sport performance.

Table 1. Descriptive statistics (total sample)

VARIABLES	Mean	SD
ANXIETY		
• Worry	14.85	4.10
• Concentration disruption	8.12	2.31
• Somatic anxiety	15.77	4.28
• Total score	38.73	8.68
THREAT PERCEPTION	20.76	6.58
COPING STRATEGIES		
• Self-distraction	4.67	1.52
• Active coping	6.32	1.24
• Denial	3.52	1.31
• Substance abuse	2.24	0.79
• Emotional support	5.24	1.60
• Instrumental support	5.46	1.49
• Behavioral disengagement	3.02	1.32
• Venting of emotions	5.03	1.43
• Positive reframing	5.71	1.41
• Planning	5.83	1.32
• Humor	4.62	1.70
• Acceptance	5.67	1.32
• Religion	3.51	1.61
• Self-blame	5.23	1.53

Concerning coping strategies, the results showed that athletes used a variety of strategies to manage stressful encounters in sport, with preference for active coping, planning, positive reframing and acceptance; the least preferred strategies were substance abuse, behavioral disengagement, denial and religion.

These findings, showing that the athletes in this sample used problem- (e.g., active coping, planning) and emotion-focused (e.g., positive reframing, acceptance) coping strategies simultaneously are in accordance with the observation by Gould et al. [17] that coping "…is a dynamic, complex process, in which the athlete can simultaneously be striving to manage the person/ stressor environment and regulate distressing emotions" (p. 90). In fact, several previous studies in general psychology [e.g., 5, 15, 16], as well as in sport psychology [e.g., 13, 17, 18, 20, 26, 27], showed that, when dealing with stressful situations, coping efforts are not limited to a unique strategy.

However, considering that effort and commitment are considered important ingredients in successful sports, several researchers advocate the use of strategies aimed at solving the problem [e.g., 8, 25]. Thus, it is expected that athletes find problem-focused strategies like active coping and planning more effective in trying to reach high levels of performance. Conversely, positive reframing may be useful and valuable when the stressor appears to be beyond the personal control of the athlete (e.g., bad refereeing), but disruptive if the athlete has to deal effectively with an intrapersonal problem over which he might have considerable control [6]. Hence, the importance, utility and effectiveness of problem- and emotion-focused coping seem to be subordinated to the type of stressors and set of circumstances athletes are confronted with, varying across time and context. No single style of coping is adaptative in all situations and, most likely, effective coping is characterized by flexibility and change [6, 18].

Differences across Sex, Age and Type of Sport in Anxiety, Threat Perception and Coping Strategies

Differences across sex

When comparing male and female athletes, a significant main effect was observed (Wilks' Lambda = 0.78, $F_{(18, 522)} = 8.26$, $p < 0.001$). Univariate tests revealed significant gender differences for worry, concentration disruption and somatic anxiety, threat perception, active coping, instrumental support, positive reframing, behavioral disengagement, denial, ventilation and substance abuse. Females reported higher levels of cognitive and somatic anxiety and of threat perception, and a greater use of emotion-focused strategies (i.e., positive reframing, behavioral disengagement, denial, venting of emotions), active coping and instrumental support (two problem-focused strategies); males reported a greater use of substances as a way of coping.

With regard to stress and anxiety (trait of anxiety and trait of threat perception), the findings of this study are similar to previous studies [e.g., 9, 31], which have also supported the notion that female athletes exhibit higher levels of trait anxiety and threat perception than their male counterparts. Cruz [11, p. 135] states that "…the explanation for these sex differences is not linear, nor peaceful", but puts forward two reasons that may justify them. First, assuming that physical skills and abilities, and the overall context of sporting achievement were for long - and still are - a predominantly male domain, it may be that women's sexual role does not encourage them to reach their full potential. Additionally, Cruz [11] also refers to the "bias of the response" hypothesis, which, associated with sex, has been used to explain sex differences in anxiety in other areas of achievement and performance evaluation. This hypothesis sustains that, because of cultural pressures to conform to gender expectations and not show anxiety in achievement areas, male individuals tend to underestimate and "conceal" or "distort" their levels of anxiety in questionnaire responses. In other words, due to sex related stereotypes, the experience of anxiety may be an acceptable "weakness" for women, but less tolerable in men.

On the use of stress-coping strategies, the fact that male athletes reported a higher use of substances like alcohol or drugs, consistent with empirical findings in other areas of psychology [e.g., 5, 16, 22, 31], is in accordance with data from the Substance Abuse and Mental Health Services Administration [35] showing that, in general, men consume more alcohol and/ or drugs than women. These findings must be taken into account in practical interventions, especially with male athletes.

Additionally, the higher use of emotion-focused strategies by female athletes is also consistent with the coping literature in general psychology [5, 16, 22, 31]. Similarly to the data pertaining to stress and anxiety, these findings seem to be in line with the traditional sex-role stereotypes and gender role expectations [5, 15, 22]. Men and women are socialized in ways that encourage seeking emotional support, employing emotion-focused coping methods and expressing emotion in women but discourage these in men, who are socialized to a greater extent to deal instrumentally with stress [31]. Furthermore, these results are in line, for example, with the coping strategies reported by the members of a women's international soccer team during preparations for the 1999 World Cup finals, which included the reappraisal of situations, a strategy used to change the reaction to negative comments made by coaches and deal with negative emotions experienced as a result of feedback [21].

Table 2. Differences across sex in anxiety, threat perception and coping strategies.

VARIABLES	Males		Females		MANOVA
	Mean	SD	Mean	SD	F
ANXIETY					
• Worry	14.04	3.57	16.73	4.57	55.21***
• Concentration disruption	7.78	2.15	8.86	2.47	26.91***
• Somatic anxiety	14.80	3.62	17.83	4.93	64.27***
THREAT PERCEPTION	19.46	6.18	23.70	6.52	53.08***
COPING STRATEGIES					
• Self-distraction	4.60	1.56	4.78	1.42	1.52
• Active coping	6.24	1.32	6.48	1.02	4.22*
• Denial	3.43	1.30	3.72	1.30	5.91*
• Substance abuse	2.32	.89	2.08	.44	11.47**
• Emotional support	5.16	1.57	5.41	1.66	2.97
• Instrumental support	5.33	1.50	5.72	1.45	8.23**
• Behavioral disengagement	2.89	1.26	3.30	1.43	11.25**
• Venting of emotions	4.86	1.43	5.39	1.36	17.00***
• Positive reframing	5.58	1.43	5.96	1.28	8.76**
• Planning	5.79	1.31	5.94	1.28	1.52
• Humor	4.53	1.70	4.84	1.67	3.87
• Acceptance	5.67	1.37	5.67	1.22	0.00
• Religion	3.49	1.63	3.50	1.54	0.007
• Self-blame	5.13	1.51	5.40	1.54	3.76

*p< .05; **p< .01; ***p< .001

However, even though the finding that female athletes used more emotion-focused strategies than male athletes should not be surprising, Carver et al. [5] sustain that the effectiveness of some of those strategies, namely denial, behavioral disengagement and venting of emotions, may be questionable. On the other hand, arguments in favor of each of these strategies can also be presented. Regarding denial, although the refusal to believe that the stressor exists or acting as if it was not real can be considered disadaptive if used over an extended period of time because the athlete will have an inaccurate perception of reality [30], it may also be functional if the athletes want to delay dealing with the stressor until a more opportune moment arises [33]. As regards behavioral disengagement, though this strategy is generally considered dysfunctional [5], Ntoumanis and Biddle [28, p. 785] argued that "…although sometimes withdrawing from a task may be an indicator of low effort or helplessness, in other circumstances it may be an adaptative choice, such when faced with an uncontrollable situation…". In general, letting out one's emotions is also considered ineffective overall, but sometimes it may be helpful if used for a short period of time, since it can help athletes cope better with their emotions [5]. In summary, what seems to be consensual is that most emotion-focused strategies are dysfunctional when used for long periods of time and when the stressors are under the individual's control [33].

Additionally, despite evidence from coping literature in general psychology [5, 15], and sport psychology [31], according to which men generally rely more on problem-focused strategies than women, in this investigation female athletes reported a greater use of active coping and instrumental support than their counterparts. Nevertheless, contrary to these studies, in an investigation by Anshel et al. [2], American and Australian athletes from various sports were compared in their use of coping strategies, and female athletes reported more problem-focused strategies than male athletes. Similarly, findings of Crocker and Graham [8] showed that female athletes used higher levels of seeking social support for emotional reasons and increasing effort to manage goal frustration. Hence, it seems that, in sport contexts, female athletes seem to make more use of both emotion- and problem-focused strategies than men.

Differences across age

The results of the MANOVA conducted to test whether athletes of different ages (seniors *vs.* juniors/ juveniles) differed in their levels of trait anxiety and threat perception and in the frequency with which they used selected coping strategies in response to competitive stressful situations showed evidence for a multivariate significant effect (Wilks' Lambda = 0.95, $F_{(18,\ 515)}$ = 1.65, $p<0.05$). Univariate age differences emerged for the coping strategies of behavioral disengagement, positive reframing, planning and acceptance. Younger athletes (juniors/ juveniles) reported a greater use of behavioral disengagement and a lower use of positive reframing, planning and acceptance than older athletes (seniors) (Table 3).

Table 3. Differences across age in anxiety, threat perception and coping strategies.

VARIABLES	Seniors		Juniors/ juveniles		MANOVA
	Mean	SD	Mean	SD	F
ANXIETY					
• Worry	14.64	4.11	15.24	4.06	2.88
• Concentration disruption	8.00	2.26	8.24	2.33	1.45
• Somatic anxiety	16.01	4.29	15.54	4.29	1.55
THREAT PERCEPTION	20.42	6.68	21.23	6.51	2.01
COPING STRATEGIES					
• Self-distraction	4.62	1.53	4.69	1.51	0.24
• Active coping	6.39	1.22	6.24	1.24	1.98
• Denial	3.47	1.29	3.59	1.29	1.27
• Substance abuse	2.19	.66	2.32	.92	3.28
• Emotional support	5.27	1.59	5.20	1.63	0.26
• Instrumental support	5.51	1.49	5.39	1.51	0.90
• Behavioral disengagement	2.88	1.20	3.21	1.33	8.27**
• Venting of emotions	5.02	1.38	5.05	1.45	0.08
• Positive reframing	5.87	1.35	5.53	1.43	7.67**
• Planning	5.96	1.29	5.71	1.31	4.48*
• Humor	4.78	1.65	4.50	1.71	3.85
• Acceptance	5.78	1.28	5.52	1.35	4.95*
• Religion	3.53	1.56	3.45	1.65	0.34
• Self-blame	5.25	1.47	5.20	1.55	0.11

*p< 0.05; **p< 0.01; ***p< 0.001

In the analysis of these results, it should be noted that the examination of age differences in stress, anxiety and coping is scarce. In particular with reference to coping strategies across different age groups, investigations in competitive sport are apparently non-existent and in the general psychology literature this is an area that has received relatively scant attention. However, in a paradigmatic study in this area, Folkman et al. [16] examined the use of coping strategies across different age groups (mean age of 40 years in the younger group and 68 years in the older group) in response to daily problems and hassles (i.e., normal everyday stressful transactions). Even though it is necessary to keep in mind that the average age of the two groups in the present study and in the research by Folkman and colleagues is substantially different - in age terms, the group of older athletes was closer to the younger age group in Folkman and colleagues' research than to their older group of subjects - a few comments on the results can be made.

Consistent with the investigation by Folkman et al. [16], the senior athletes in the present study used more passive, intrapersonal and emotion-focused strategies. About their results, the authors suggested that age differences in coping arise from changes in what people must cope with, and the fact that older individuals make greater use of emotion-focused strategies is adaptive because it presupposes that people become more mature in their coping behaviors as they grow older, evaluating stressful situations as less controllable. In this context, considering that older athletes used more emotion-focused and/ or theoretically adaptative coping strategies than the junior/juvenile athletes, namely positive reframing, planning and acceptance, the older athletes' copping patterns may also be considered appropriate and adaptive.

Furthermore, in comparison with older athletes, younger athletes seemed to use more behavioral disengagement (i.e., withdrawing from a task) – usually considered a non-active and disadaptive strategy [5] – to cope with stressful situations. One possible explanation for this result may be that young people are more biologically, cognitively and emotionally "immature". They may experience more and different types of situations as stressful and may be "locked" into more reflexive ways of responding to these situations; these characteristics, along with the fact that the ability to self-regulate emotion increases with age and they may not attain functionally mature levels of processing until adulthood [7], may thus explain why they may easily "give up" dealing with the problematic situation. These statements are, to some extent, corroborated by the fact that in comparison to older athletes junior/juvenile athletes also reported a greater - though not statically significant - use of other theoretically dysfunctional strategies (e.g., substance abuse, venting of emotions).

In conclusion, these results highlight the role of maturity and experience in the use of more functional and adaptive coping strategies, supporting the developmental and age differences hypothesis in the use of coping [see 16]. In addition, despite the need for confirmation in future studies, these results have implications for applied sport psychologists and practitioners, who should be aware that young athletes use more dysfunctional coping strategies than older athletes.

Differences across type of sport

When comparing athletes from individual and team sports, a significant main effect was observed (Wilks' Lambda = 0.90, $F_{(18, 521)}$ =3.18, p<0.001). Univariate tests revealed that significant differences emerged for worry, somatic anxiety, threat perception, venting of emotions, substance abuse and humor (Table 4). Athletes from individual sports reported higher levels of worry, somatic anxiety, threat perception, and a greater use of venting of emotions. Athletes from team sports reported a greater use of humor and substance abuse.

Table 4. Differences across type of sport in anxiety, threat perception and coping strategies

VARIABLES	Individual		Team sports		MANOVA
	Mean	SD	Mean	SD	F
ANXIETY					
• Worry	16.21	4.61	14.63	3.95	4.81*
• Concentration disruption	8.84	2.54	7.98	2.24	2.47
• Somatic anxiety	18.01	4.86	15.31	4.06	4.64*
THREAT PERCEPTION	22.38	5.53	20.48	6.74	5.20*
COPING STRATEGIES					
• Self-distraction	4.62	1.48	4.67	1.52	0.13
• Active coping	6.36	1.16	6.31	1.25	1.26
• Denial	3.40	1.32	3.55	1.30	0.012
• Substance abuse	2.14	.46	2.26	.83	7.49**
• Emotional support	5.57	1.54	5.17	1.61	1.12
• Instrumental support	5.66	1.37	5.41	1.52	3.05
• Behavioral disengagement	3.06	1.40	3.01	1.31	1.57
• Venting of emotions	5.27	1.13	4.98	1.47	4.18*
• Positive reframing	5.86	1.42	5.67	1.41	0.28
• Planning	5.84	1.26	5.84	1.31	0.34
• Humor	4.48	1.52	5.66	1.72	6.56*
• Acceptance	5.58	1.23	5.68	1.34	1.17
• Religion	3.45	1.58	3.50	1.61	0.041
• Self-blame	4.98	1.59	5.25	1.51	0.27

*p< 0.05; **p< 0.01; ***p< 0.001

With respect to anxiety and threat perception, results are congruent with findings from previous investigations in sport psychology [e.g., 9]. Cruz [11] argues that these differences may suggest that stress and anxiety are related to different demands and different types of achievement contexts: compared with group situations, where performance is evaluated from a collective standpoint, competitive situations where the potential for negative personal assessment is higher, as is the case of individual sports, promote and encourage superior levels of performance anxiety.

Furthermore, in individual sports, social support and/ or reinforcement from peers, who share the same goals, problems and difficulties, may not be as easily available as in team sports. In fact, Dale [12] found that teammates can be a 'refuge' from the pressure of competition and camaraderie may allow athletes to relax together and even ask each other for advice regarding various aspects of their performance. This might explain why athletes in individual sports have more difficulties in self-regulating emotions, and use less humor and venting of emotion in response to stress. Additionally, team sports generate additional opportunities for social interaction (e.g., weekly or monthly "dinner" reunions), which, in the context of "social consumption" of alcohol or drugs, may explicate the greater abuse of alcohol or drugs by these athletes.

CONCLUSIONS AND PRACTICAL APPLICATION

Participating in competitive sport often places the athlete under intense physical, psychological, and emotional demands. Accordingly, the purpose of this study was to closely examine anxiety levels, cognitive appraisal of threat and coping strategies used by athletes in stressful situations, exploring differences in gender, age, and type of sport.

Overall, the results provide support for the important role of anxiety, appraisals (i.e., the way athletes perceive, "see" and interpret the competitive situation) and coping in sport performance, stressing the need to measure and study these variables simultaneously in the future. Additionally, differences were observed

between sexes, age groups and types of sport, suggesting that these variables may be acting as moderators between stress and performance, and, accordingly, should not be overlooked in future investigations about psychological characteristics as predictors of sport performance.

Nevertheless, it should be noted that further investigation is required to corroborate the data and guide the development of individualized intervention strategies and programs, incorporating techniques that reduce athletes' appraisals of threat and/ or develop their coping skills. Moreover, if gender differences are apparent in either appraisal or coping patterns, coaches and other practitioners may use this information to expand athletes' coping repertoires to help maximize their ability to cope with competitive stress more successfully.

In fact, applying or putting into practice what works for some athletes may result in danger or negligence of other athletes' personal concerns and abilities and in applied science, the "art" of training and psychological intervention can be seen in the ability of coaches and sport psychologists to individualize their speeches and messages in line with athletes' specific needs. A similar statement has been made by Hammermeister and Burton [20], pointing the need to avoid the temptation "to treat all athletes in a similar way" (p. 88).

Hence, the fact that athletes, although engaged in similar competitive situations, may feel threatened by different aspects, should also be considered. If differences are apparent in either appraisal or coping patterns, coaches and other practitioners may use this information to expand athletes' coping repertoires to help maximize their ability to cope with competitive stress more successfully. According to Hammermeister and Burton [20], the most effective coping skills will be those compatible with the profile of the athlete.

This individualization must take into consideration the sex, age and type of sport in which athletes are engaged. In fact, previous studies found that, in team sports, many stressors were related to the social interactions situated in the context of the team environment [see 21]. Thus, it would be important to further study the relationship between athletes' cognitive appraisal processes and different coping strategies in diverse individual and team sports. Nonetheless, so as to develop and offer these intervention programs, it is also indispensable to consider individual differences in terms of sex and age. However, with reference to sex differences in coping, Crocker and Graham [8] alert to the possibility that females and males are affected by different type of performance stressors, stating that it would be necessary to define a common stressor to ascertain whether sex differences in coping found in any study were due to true gender differences or were attributable to differences in types of reported stressors. The same reasoning applies equally to the examination of differences in age and type of sport in anxiety, appraisal or coping patterns. Similarly, future research should devote more efforts to the exploration of such differences in qualitative different threats in the sport environment [20].

Finally, an obvious limitation of the present study is the exclusive use of self-reports, in which athletes were asked to recall how they usually felt and coped with stressful and problematic situations. As already mentioned by several researchers [e.g., 1], the accuracy of recall of distant earlier experiences may be questionable; additionally, the recalled intensity, whether in terms of anxiety and threat perception levels, or in the estimates of the frequency with which athletes typically used particular coping strategies, may differ from athlete to athlete; besides, specifically with regard to coping strategies, asking subjects to recall nonspecific sport stressful situations can lead them to evoke only remote episodes or situations where the results were satisfactory or desirable. However, in most cases, psychological self-reports are still the only and more reliable way to obtain information in sport contexts.

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