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Using training and parental motivational climates to predict performance anxiety at youth football players

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Abstract. Drawing on the Self-Determination Theory, the current study examines the relations between two types of anxiety – cognitive and somatic – various variables from a parental and training motivational climates. evaluates whether basic needs from a parental motivational climate has an incremental contribution over training motivational climate in explaining cognitive and somatic anxiety. In a sample of 251 youth football players we found that training competence frustration, training autonomy satisfaction and training relatedness frustration significantly related to cognitive an somatic anxiety dimensions, whereas parental motivational climate variables were not related to the mentioned outcomes. Results indicate that certain training motivational climate factors play a role in anxiety.

Keywords. self-determination, sport, psychology, anxiety, football

1. Introduction

Football (European football) is a sport that involves good technical, tactical, and physical abilities, outstanding mental strength. For at least half of the century, football became a social phenomenon with millions of professional and amateur players and hundreds of millions of fans watching football and cheering their favorite teams and players. Moreover, many children are choosing football as their favorite sport to play, and they enroll in soccer clubs that provide the basis for practicing an organized sport.

Participation in organized sport has the potential to influence the development of youth positively. Horn and Horn (2007) described youth sport as a social system that includes the development of values, attitudes, social relationships, and motivational factors. On the other hand, organized sport can produce adverse outcomes. For youth practicing organized sport, the demands of performing at a high level can lead to damaged self-esteem, a higher level of anxiety and depression (Ryan, 1996; Scanlan, Stein, & Ravizza, 1991). Moreover, researchers found that higher stress levels can lead to burnout (Gould, 1993) and eating disorders (Sundgot-Borgen & Torstveit, 2004). In this study, we focus our attention on the negative consequences of performance anxiety and the factors that promote organized sports youth anxiety.

1.1. Anxiety in sport

Sports performance anxiety is defined in sport psychology literature as a predisposition to respond with cognitive and somatic state anxiety to competitive sports situations in which the athlete can be evaluated by others (O’rourke, Smith, & Smoll, 2011). Findings of the

adverse effects of anxiety in sport are not new. Passer (1983) found that children with high-performance anxiety levels are sensitive to fear of failure and worry more frequently when losing or making mistakes. Other studies have found that performance anxiety harms physical well-being and enjoyment of sport participation (Scanlan, Babkes, & Scanlan, 2005; Smith et al., 1998). Moreover, reductions in anxiety are associated with enhanced sporting experiences for children when evaluative pressures are reduced (Lewthwaite & Scanlan, 1989; Smith, Smoll, & Cumming, 2007). Furthermore, performance anxiety is linked to lower performance, motivation, sport attrition, and susceptibility to injury (Smith & Smoll, 2004; Smith, Smoll, & Passer, 2002).

1.2. Self-determination in sport

One of the directions in which performance anxiety is studied in sport is related to other psychological constructs. One crucial construct is represented by motivation (Cecchini, González, Carmona, and Contreras, 2004). Deci and Ryan's (1985) Self-Determination Theory (SDT) explain that humans have three fundamental needs that must be satisfied. First, there is the need for autonomy. Autonomy involves a feeling of freedom of choice and acting by one's needs and desires (Deci & Ryan, 2000). Second, the need for relatedness suggests that humans have an innate need to feel connected to essential others. Third, the need for competence is critical in the sport context (Duda, 2005; Reinboth & Duda, 2006).

The effects of the basic psychological needs in sports are multiple. Previous studies have shown that the perception of autonomy support by coach and teacher has been found to predict the basic psychological needs satisfaction in sport (Smith, Ntoumanis, & Duda, 2007), exercise (Edmunds, Ntoumanis, & Duda, 2007) and physical education (Standage, Duda, & Ntoumanis, 2006). A healthy environment, created by the coach for young athletes, based on autonomy support, mastery focused, and social support was found to predict the needs for autonomy, competence, and relatedness, respectively, in a sample of adolescent male athletes (Reinboth et al., 2004). However, little is known about the effects that the training environment joint with the familial environment has on the perception of young footballers' competitive anxiety. Most studies focused on the effect that self-determination created the environment has over the motivation of athletes.

1.3. Training motivational climate

The training environment can be compared with the work environment. When an employee does not feel that the environment is promoting good relations among colleagues or that the autonomy to decide is limited, and above this, the promotion of competence is lacking, it is possible that the employee will not perform at its best. Also, negative feelings can appear that affect an employee's life, both professional and personal. So, for a young athlete to perform at its best, the training environment must be a motivating one. Studies have also shown that a healthy and motivating environment in the sport setting can promote long-term participation in the sport (Krane, Greenleaf, & Snow, 1997).

Moreover, in a study involving four hundred and ninety-two football players, the researchers found that sport dropout can be explained in part by motivation, external regulation, and lower satisfaction of relatedness and autonomy (Garcia Calvo et al., 2010). The coach represents the most significant figure influencing the well-being and optimal functioning of youth playing a sport. For this reason, researchers started studying the relationship between coaching environment and participants' well-being in the sports domain (Adie, Duda, & Ntoumanis, 2008; Reinboth, Duda, & Ntoumanis, 2004). For example, Gagne, Ryan, and Bargmann (2003) have found in a diary-type study involving young gymnasts that daily

perceived motivational training climate affects an athlete's well-being. Moreover, trained coaches in creating a motivational climate based on satisfaction of the three basic psychological needs resulted in lower levels of sport anxiety for the intervention group than the control group (Smith, Smoll, & Cumming, 2007). Therefore, we are interested in analyzing the perceived training motivational climate concerning competitive anxiety in youth football players.

1.4. Parental motivational climate

Parent interaction with children regarding their sport experience can take many forms. Stein, Raedeke, and Glenn (1999) found that parents are involved in giving technical advice, providing transport, and supporting equipment costs. Also, this interaction can influence changes in the psychosocial aspects of athletes during a sports season (O'Rourke, Smith, Smoll, & Cumming, 2011, 2012). Studies regarding the relationship between parents and athletes in a sports context have received less empirical attention than those involving the coach. O'Rourke, Smith, Smoll, and Cumming (2011), in a survey of the PsycINFO search facility, found that from 123 published studies, only 29 focused on the motivational climate provided by the family. One explanation for this is that the parents are not involved in a specific sport's technical process while the coach must handle more children. However, the parental motivational climate seems to have some psychological influence.

Regarding self-determination, authority figures' coercive behaviors are considered to frustrate the need for autonomy and undermine intrinsic motivation (Deci & Ryan, 2000). Contrarily, an autonomous environment is related to higher levels of task perseverance, enjoyment, and psychological well-being (Duda & Treasure, 2010; Gagne et al., 2003). Some studies have shown that parental motivational climate can predict anxiety even when a coach's motivational climate is controlled (O'Rourke et al., 2014).

Most studies focused on the parents' pressure on the child to perform at a certain level in relation to anxiety and well-being. Within the scientific literature, parental pressure is considered one of the most frequent maligned parenting practices (Engh, 2002). For example, in a study involving youth swimmers, O'Rourke et al. (2014) found that parental pressure was associated with high levels of anxiety at different points of the competition season. Moreover, it seems that parental pressure can undermine the child's sense of autonomy (Gagne et al., 2003; Gould et al., 2008). Also, parents pressuring the child to achieve success at all costs can have a reverse effect in the sense of promoting fear of losing and failure (Gagne et al., 2003). Finally, parental pressure has been linked in some studies with higher performance anxiety (Sebire, Standage, & Vansteenkiste, 2009).

1.5. Objectives and hypothesis

Within the SDT framework, the present study's objective is to explore the relations between competitive anxiety and training and parental motivational climates. More specifically, we hypothesize that the three basic psychological needs' satisfaction and frustration can predict a higher level of cognitive and somatic anxiety. Above this, we also consider that the exertion of parental autonomy and control over the children's activity has a significant influence on cognitive and somatic anxiety. Therefore, we expect that:

Hypothesis 1: Cognitive and somatic anxiety will be positively associated with training autonomy frustration needs, training competence frustration needs, training relatedness frustration need, and parental control.

Hypothesis 2: Cognitive and somatic anxiety will be negatively associated with training, autonomy, satisfaction needs, training competence satisfaction need, training relatedness satisfaction needs, and parental autonomy.

Hypothesis 3: Training autonomy frustration need, training competence frustration need, training relatedness frustration need, training autonomy satisfaction need, training competence satisfaction need, training relatedness satisfaction need, will show unique, incremental validity over age and experience in predicting cognitive and somatic anxiety

Hypothesis 4: Parental control and parental autonomy will show unique, incremental validity over age and experience and psychological training needs in predicting cognitive and somatic anxiety

2. Method

2.1. Participants

Participants were 251 youth soccer players from different teams ranging from 11 to 19 years old (M_{age} = 14.5; SD = 2.12). Most players were involved in soccer for at least two years with an average experience of playing soccer of 7.24. All participants were involved in competition during the completion of the questionnaires. All the essential positions in the football game were covered by the participants (23 goalkeepers; 47 central defenders; 68 central midfielders, 41 right wings; 39 left wings; and 33 strikers)

2.2. Procedures and design

The study's design was cross-sectional, and the statistical method used to verify our hypothesis was hierarchical regression.

The study aimed to investigate the relationship between anxiety and motivational climates by involving youth soccer players. The participants completed a package of questionnaires online in Google Forms. For the selection of the participants, we spoke with several coaches from different teams about our goals and also committing to sharing the results obtained with them. Following University ethical approval, we sent a consent form to the parents detailing the purpose and protocol of the study. Parental and coach consent was obtained along with written assent from the players. APA guidelines regarding anonymity and confidentiality were followed

2.3. Measures

Competitive State Anxiety Inventory-2 (CSAI-2) (Martens et al., 1990). The scale comprises 27 items and three subscales: cognitive anxiety, somatic anxiety, and self-confidence. For this study, we used only the cognitive and somatic anxiety subscales. Participants answered on a four-point scale (1 = never; 4 = very much) to the degree they felt in that way before a competition. For cognitive anxiety, an example item is: "I have doubts about myself". For somatic anxiety, an example item is: "I feel nervous". Previous research has provided evidence for the construct validity and internal reliability of this scale ().

Perceived Parental Autonomy Support Scale (P-PASS) (Mageau et al., 2015). The 24-item scale was created to assess the parental motivational climate. More specific, the scale has two subscales: autonomy-support and psychological control. We adapted the scale in the sense that instead of the child answering each question twice (for the father and mother), we asked them to answer only once to the items taking both parents into account. The internal consistency for this version of the scale is .84 for autonomy-support and .84 for psychological control. Example of items are provided: "My parents gave me many opportunities to make my

own decisions about what I was doing”; “My parents refused to accept that I could want simply to have fun without trying to be the best”.

Basic Psychological Need Satisfaction and Frustration Scale – Training domain (Wilson, Rogers, Rodgers, & Wild, 2006). The scale measures the three basic psychological needs (autonomy, relatedness and competence), has 24 items and 6 subscales: autonomy satisfaction, autonomy frustration, relatedness satisfaction, relatedness frustration, competence satisfaction and competence frustration. The items are referring to the training environment. Examples of items are: “I experienced a good bond with the other participants”; “I felt competent to achieve the proposed goals”; “I felt pressured to think and act in a certain way”. Internal consistency

3. Results

3.1. Associations between studied variables

To test the first two hypothesis a Pearson's correlation was carried out to assess the relationship between the studied variables. The results indicated a significant positive relationship between cognitive anxiety and training autonomy frustration ($r = .18; p < .01$), training competence frustration ($r = .60; p < .01$), training relatedness frustration ($r = .38; p < .01$). Furthermore, negative significant statistical relationships was found between cognitive anxiety and training autonomy satisfaction ($r = -.35; p < .01$), training competence satisfaction ($r = -.34; p < .01$), training relatedness satisfaction ($r = -.29; p < .01$) and parental autonomy ($r = -.27; p < .01$). For somatic anxiety, the results indicated a significant positive relationship with training autonomy frustration ($r = .20; p < .01$), training competence frustration ($r = .47; p < .01$), training relatedness frustration ($r = .28; p < .01$) and parental control ($r = .15; p < .01$) Furthermore, negative significant statistical relationships was found between somatic anxiety and training autonomy satisfaction ($r = -.29; p < .01$), training competence satisfaction ($r = -.24; p < .01$), training relatedness satisfaction ($r = -.20; p < .01$) and parental autonomy ($r = -.24; p < .01$). The results can be seen in Table 1

Table 1. Means, standard deviations and correlation coefficients for the variables included in the study

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| 1 Cognitive anxiety | | | | | | | | | | |
| 2 Somatic anxiety | .75** | | | | | | | | | |
| 3 Training Autonomy Satisfaction | -.35** | -.29** | | | | | | | | |
| 4 Training Competence Satisfaction | -.34** | -.24** | .49** | | | | | | | |
| 5 Training Relatedness Satisfaction | -.29** | -.20** | .39** | .44** | | | | | | |
| 6 Training Autonomy Frustration | .18** | .20** | -.20** | -.28** | -.17** | | | | | |
| 7 Training Competence Frustration | .60** | .47** | -.32** | -.39** | -.25** | .34** | | | | |
| 8 Training Relatedness Frustration | .38** | .28** | -.20** | -.23** | -.48** | .33** | .39** | | | |
| 9 Parental Autonomy | -.27** | -.24** | .40** | .39** | .42** | -.25** | -.24** | -.32** | | |
| 10 Parental control | .10 | .15* | .01 | .09 | -.08 | .30** | .10 | .31** | -.21** | |
| M | 17.09 | 16.45 | 17.35 | 18.48 | 17.79 | 6.81 | 9.12 | 7.21 | 72.41 | 35.80 |
| SD | 6.15 | 5.30 | 2.47 | 1.88 | 2.64 | 2.62 | 3.65 | 3.16 | 9.58 | 9.14 |

M = mean; SD = standard deviation;

* $p < .05$; ** $p < .01$

3.2. Hierarchical regression

Two hierarchical multiple regression were conducted using cognitive anxiety and somatic anxiety as criterion variables, and training motivational climate and family motivational climate as predictor variables, respectively. In the first step, age and experience in football were included as control variables, as they were found to be related to dependent variables in previous research (Mellalieu, Hanton, & O'Brien, 2004). In the second step, the variables forming the training motivational climate were added. In the third and final step the two forms of family motivational climate were added. See Table 11 for full details on the regression model.

For somatic anxiety, the analyses revealed that age ($\beta = .05$) was not significantly related to somatic anxiety while experience in football ($\beta = -.18$) was statistically significant. More years playing football meaning a lower level of somatic anxiety. The model based on age and experience in football explain somatic anxiety at a rate of 1.7% ($R^2 = .017$).

In the second step, Training Autonomy satisfaction ($\beta = -.15$) and Training Competence Frustration ($\beta = .37$) were significantly associated with somatic anxiety. Participants who scored higher at training autonomy satisfaction reported lower levels of somatic anxiety and participants who scored higher at training competence frustration reported higher levels of somatic anxiety. The training motivational climate raised the model's explanatory potential to 23.8% ($R^2 = .238$).

In the third and final step, both variables included from the family motivational climate reported an insignificant association with somatic anxiety. Taken together, somatic anxiety can be explained by age, experience in football, training motivational climate and family motivational climate at a rate of 24.3 % ($R^2 = .243$).

For cognitive anxiety, the analyses revealed that age ($\beta = .11$) was not significantly related to cognitive anxiety while experience in football ($\beta = -.18$) was statistically significant. More years playing football meaning a lower level of cognitive anxiety. The model based on age and experience in football explain somatic anxiety at a rate of 1.5% ($R^2 = .015$).

In the second step, Training Autonomy satisfaction ($\beta = -.13$), Training Competence Frustration ($\beta = .48$) and training relatedness frustration ($\beta = .16$) were significantly associated with cognitive anxiety. Participants who scored higher at training autonomy satisfaction reported lower levels of cognitive anxiety and participants who scored higher at training competence frustration and training relatedness frustration reported higher levels of cognitive anxiety. The training motivational climate raised the model's explanatory potential to 40.1% ($R^2 = .401$).

In the third and final step, both variables included from the family motivational climate reported an insignificant association with cognitive anxiety. Taken together, cognitive anxiety can be explained by age, experience in football, training motivational climate and family motivational climate at a rate of 40.5 % ($R^2 = .405$).

Table 2. Hierarchical Regression analysis predicting youth soccer players somatic anxiety

| | | Somatic anxiety | | Cognitive anxiety | |
|------------|--|-----------------|------------------|-------------------|------------------|
| Predictors | | β | $R^2/\Delta R^2$ | β | $R^2/\Delta R^2$ |
| Step 1 | | | .017 | | .015 |
| Age | | .05 | | .11 | |
| Experience | | -.18* | | -.18* | |
| Step 2 | | | .238/.221 | | .401/.386 |

| | | | | | |
|-----------------------|-------------|-------|-----------|-------|-----------|
| Age | | .03 | | .01 | |
| Experience | | -.10 | | -.09 | |
| Training satisfaction | Autonomy | -.15* | | -.13* | |
| Training satisfaction | Competence | .01 | | -.05 | |
| Training satisfaction | Relatedness | -.02 | | -.05 | |
| Training Frustration | Autonomy | .01 | | -.09 | |
| Training Frustration | Competence | .37** | | .48** | |
| Training Frustration | Relatedness | .10 | | .16** | |
| <i>Step 3</i> | | | .243/.005 | | .405/.004 |
| Age | | .04 | | .00 | |
| Experience | | -.10 | | -.08 | |
| Training satisfaction | Autonomy | -.14* | | -.12* | |
| Training satisfaction | Competence | -.01 | | -.05 | |
| Training satisfaction | Relatedness | -.01 | | -.04 | |
| Training Frustration | Autonomy | -.03 | | -.10 | |
| Training Frustration | Competence | .37** | | .49** | |
| Training Frustration | Relatedness | .07 | | .15* | |
| Parental Autonomy | | -.05 | | -.04 | |
| Parental Control | | .10 | | .04 | |

Note: The tabled values for beta reflect Bs after step 3; * p<.05; ** p<.01.

4. Discussion

4.1. Associations between studied variables

The first two hypothesis were confirmed by the results obtained in this study. All the variables from the training motivational climate were corelated with cognitive and somatic anxiety in the direction expected. From the parental motivational climate, only parental control did not corelate with cognitive anxiety. These results confirmed the previous research that linked the self-determination variables with anxiety and other emotional outcomes (Gagne et al., 2003; O'rourke et al., 2014; Smith & Smoll, 2004; Smith, Smoll, & Passer, 2002). Although the results do not imply a causal relationship between competitive anxiety and self-determination, there are reasons to belief that these variables are effecting in some way the level of anxiety in youth football players.

4.2. Training motivational environment predicting cognitive and somatic anxiety

The second hypothesis was confirmed only partially. The present study revealed that two out of six basic psychological needs variables studied are related to youth football players' cognitive anxiety, after controlling for age and football experience. The most relevant variable predicting cognitive anxiety is training competence frustration. Drawing from the SDT theory, the need for competence was found in previous studies to be related to positive emotional outcomes in youth sport participants (Adie, Duda, & Ntoumanis, 2012). More specifically, the satisfaction of the need for competence was linked to emotional outcomes. In our study, interestingly, the frustration of the need for competence predicted cognitive anxiety. This not singular finding, Reinboth et al. (2004) found that the need for competence was inversely linked to symptoms of physical ill-health. It seems that a training environment where the significant others (coach, colleagues) are making the youth football player feel less competent, less good at what he does is more significant in producing higher levels of cognitive anxiety than the satisfaction of the same need. From a practical point of view, this is important because it shows that coaches should be aware of the damaging effect that the frustration of the need for competence has on the youth players. Although it cannot be verified within this research, another explanation can be related to the cultural context. Without assuming that this is the case, it is possible that in some cultures, the communication between the coach and players is not one that can nurture a competence feeling in players so that producing an environment without frustrating the competence need may be more important than satisfying the same basic psychological need.

The second variable related to training motivational training climate that predicted cognitive anxiety in this study was training autonomy satisfaction. This finding is in line with previous studies suggesting that autonomy supported environment is crucial to participants' well-being in sport context (Adie, Duda, & Ntoumanis, 2012; Gagne, Ryan & Bargmann, 2003; Smith, Smoll, & Cumming, 2007). In this regard, the results show that the environment in which youth football players feel a sense of freedom and can choose for themselves sometimes can be a protective factor for cognitive anxiety.

The rest of the motivational training climate variables did not predict cognitive anxiety in youth football players. Among these variables, the relatedness basic psychological need did not show a predictor of any of the two facets, satisfaction or frustration. One explanation can be that the training environment's social aspects are more critical for other outcomes than for cognitive anxiety. For example, in the study conducted by Reinboth et al. (2004), only autonomy and competence were related to subjective vitality and intrinsic interest in the sport. Moreover, relatedness seems to be more related to dropout from sport (Calvo et al., 2010) and enjoyment of sport (Quested et al., 2013).

Three training motivational climate variables predicted somatic anxiety in our study. Like cognitive anxiety, the frustration of the need for competence was the most significant variable to predict somatic anxiety. Basically, when youth football players experience a motivational training climate that is thwarting their need for competence the level of somatic anxiety is higher. This finding can be related to studies that say that frustration of the need for competence can be related to physical ill health of the youth (Reinboth et al., 2004). The other two variables predicting somatic anxiety are autonomy and relatedness. Autonomy has shown to be an important role in predicting anxiety and other emotional aspects in previous studies. Relatedness did show significant prediction effect for cognitive anxiety but in turn it seems to influence somatic anxiety. So, emotions that are transferred on the body symptoms can be also related in some degree to an environment promoting the satisfactions of the three basic psychological needs.

4.3. Parental motivational environment predicting cognitive and somatic anxiety

The third hypothesis was not confirmed by the obtained results. This means that family environment it is not that important in the manifestation of competitive anxiety, compared to training motivational climate. It is possible that only the pressure exerted by the parents specifically on the performance attained in sport context can be detrimental to the athlete. Previous studies have shown that parental pressure (Sebire et al., 2009) and coercive behaviour (Gould, et al., 2008; Smoll & Smith, 2002) can produce higher levels of anxiety and a threatening sport environment. However, other research has shown little relation between parental pressure and psychosocial measures, including anxiety (Brustad, 1988; Collins & Barber, 2005). Another explanation can be attributed to some mediators that can influence the relationship between parental motivational climate and competitive anxiety.

4.4. Limitations and future research directions

The present study has some limitations. First, this research is a cross-sectional one, meaning that we cannot make causal inferences. For a future research, it would be beneficial for the sport psychology scientific literature to have studies in which we can track the perception of youth football players over the motivational climate in more accurate way. Diary and other longitudinal studies can add more pieces of the puzzle of the link between self-determination and anxiety in sport.

Second, the present study is based on self-reports, this may have inflated the associations among the study variables. One way in which the self-determination and anxiety can be studied is by collecting data from other significant persons, such as parents, coach, and peers.

Third, we did not include in this study motivation as a mediator between self-determination and anxiety, such as previous studies have used motivation as intermediary for other psychological or social constructs.

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