Original Article

Perfectionism traits and coping strategies in soccer: a study on athletes' training environment

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Abstract:

This study investigated the perfectionism trait and coping among soccer players according to training environment. Participants were 182 athletes from different training environments (professionalized and non-professionalized) from the State of Paraná. Data collection was conducted through Multidimensional Perfectionism Scale and the Athletic Coping Strategies Inventory. For data analysis, Mann-Whitney, Spearman Correlation and Path Analysis were conducted ($p < 0.05$). The results showed that players from professionalized environments had higher scores in the domains of adaptive perfectionism when compared to non-professionalized players, which showed higher scores in the domain of Parental Criticism. Professionalized players used more effectively the strategies of Confidence and Motivation, Maximum Performance under Pressure and Formulation of Goals when compared to non-professionalized athletes. Adaptive perfectionism domains had significant impact on the coping of professionalized athletes, while Parental Criticism (maladaptive perfectionism) had an inverse effect on the non-professionalized athletes' trainability. It was concluded that adaptive perfectionism positively influenced the coping strategies of athletes from the professionalized training environment. In addition, within athletes from the non-professionalized environment, parental criticism was a negative determinant of athletes' performance during training and competitions.

Key Words: - Stress; Sport; Personality; coping

Introduction

Being a successful athlete requires a high degree of persistence, dedication, discipline and effort, as well as a satisfactory environment that allows athletic development. Research has pointed out that it is rare for an athlete to succeed in the sport if he/she does not have access to a training environment that favors the development and optimization of sports skills (Henriksen, Stambulova, & Roessler, 2010).

Thus, individuals participating in systematic training centers have better infrastructure and training quality for athletic development (Araújo, Miller, & Manner, 2014; Henriksen et al., 2010) and, potentially from psychological skills adapted to the sporting context. In this scenario, the training environment seems to be a significant variable. However, as far as our literature review has reached, no study has identified how the structure of the training environment is associated with the traits of perfectionism and stress confrontation (coping), and favor the performance and continuity of the sporting career.

The coping strategies can be characterized as a multidimensional self-regulation construct that represents the constant changes in the behavioral and cognitive mechanisms used to manage the stressful demands of the context (Lazarus & Folkman, 1987). Therefore, it is known that the inability to overcome stressful demands and adversity in the sport (coping) has been highlighted as a significant factor in the lack of success of athletes during the search for high performance (Lazarus & Folkman, 1987), since several researches have associated sporting success with the proper use of the coping strategies (Meyers, Stewart, Laurent, Leunes, & Bourgeois, 2008; Nieuwenhuys, Vos, Pijpstra, & Bakker, 2011). However, there are still inconsistencies about how athletes develop appropriate coping strategies and what factors intervene in this process (Tamminen & Holt, 2012).

In fact, the training environment has also been reported as an important factor, but assessed from the motivational climate (Baser, Bayar, & Ghorbanzadeh, 2013), team or competitive level (Kristiansen & Roberts,

2010) and performance of young and adult athletes (Nicholls & Polman, 2007; Nicholls, Polman, & Levy, 2012). However, none of these studies investigated the team's training structure, considering the degree of professionalism that athletes go through.

Researches have reported the importance of other psychological constructs in sport for the proper use of coping strategies (Gaudreau & Antl, 2008; Mouratidis & Michou, 2011), portraying that this construct is directly and indirectly influenced by intervening elements. Specifically, some personality traits have been identified as determinants for the use of coping strategies in the sporting context (Allen, Frings, & Hunter, 2012), highlighted as predictors the perfectionist orientations of athletes (Hill & Curran, 2016; Hill, Madigan, Smith, Mallinson-Howard, & Donachie, 2019).

The traits of perfectionism reflect the establishment of high standards of personal achievement, as well as a tendency to critically assess performance achievements (Frost, Marten, Lahart, & Rosenblate, 1990). Perfectionism is considered as a construction of personality, but it is impacted by the environment, assuming, in the sporting context, adaptive characteristics or perfectionistic strivings (PS) (pattern of personal or organizational realization) or maladaptive or perfectionist concerns (PC) (concern with errors, doubts in action, social criticism among others) (Gotwals, Stoeber, Dunn, & Stoll, 2012). This dichotomy has been shown to be important in determining positive or negative outcomes in sport (Stoeber, 2018; Stoeber, Damian, & Madigan, 2017; Stoeber, Edbrooke-Childs, & Damian, 2016) mainly related to copying strategies (Mouratidis & Michou, 2011). However, it is still necessary to advance in literature on how the relationship between these two psychological constructs is influenced by the structure of the training environment.

Thus, this study becomes relevant as it analyzes the effects of the membership of soccer athletes with a professional profile (who follow regular and systematic training programs, participate in national and international competitions and engage in the sporting career), about the relationship between these variables, especially in comparison to athletes who participate only in soccer (non-professional) schools. The findings of this research can provide important evidence on the impact of the sports training structure of soccer on the Traits of perfectionism and the use of athlete's copying strategies, indicating how sports environments can be organized to favor the development of talent.

The present study aimed investigate the Traits of perfectionism and the strategies of coping of soccer athletes, seeking to verify the relationships of prediction between perfectionist orientations and the strategies of coping of players from different training environments (professional and non-professional).

Material & methods

Participants

The sample consisted of players from a club participating in the 1st Division of the Brazilian Soccer Championship. The group of players called "professionalized" was composed of Paid Athletes, full-time residents, at the training center (TC) of the evaluated club, with training contracts and representing the club in national and international competitions, totaling 63 (sixty-three) players with an average age of 17.59 ± 0.77 years. This group of athletes trained daily in two periods of approximately 1h30 minutes each training session. The group of players called "non-professionalized" was composed of 119 (one hundred and nineteen) participants of the soccer schools accredited by the professional club in the various cities of the state of Paraná, with an average age of 14.01 ± 1.53 years. Such athletes trained three times a week in just one period lasting approximately 1h30 minutes each training session.

Instruments

Coping- The Athletic Coping Skills Inventory-28 (ACSI-28) (Smith, Schutz, Smoll, & Ptacek, 1995), validated for the Brazilian sports context (Miranda et al., 2018) was used. This widely accepted scale has 28 self-report questions scored on a 4-point Likert-type scale with anchors 1: Almost never and 4: Almost always, and measures athletes' response to questions regarding athletic performance (i.e., "I tend to play better under pressure because I think more clearly"). The Athletic Coping Skills Inventory-28 has seven subscales measuring athletes' self-reported coping with adversity, coachability, concentration skills, goal setting and mental preparation, confidence and achievement motivation, peaking under pressure, and freedom from worry. The higher the score on each scale, the higher the correlation of athletic coping would be with performance. The 22-item scale showed acceptable adjustment [$X^2(188)=239.32$; $X^2/df=1.27$; CFI=0.90; GFI=0.90; TLI=0.89; RMSEA=0.04; $P(rmsea<0.05)=0.900$].

Perfectionism- To identify perfectionism traits the Multidimensional Perfectionism Scale (MPS)(Frost et al., 1990), validated for the Brazilian sports context (Correia, Rosado, & Serpa, 2017) was used. The instrument consists of 35 items on a Likert scale of 5 points (1=completely disagree to 5=completely agree). The results are grouped into four sub-scales: personal standards/organization, concern for errors, perceived parental pressure and doubts in action. Since the instrument does not have validation for the sporting context, a CFA was held, which revealed that items 4 (standards of personal accomplishment), 17 (doubts in action), 27 and 29 (organization), and 34 (concerns about errors) did not saturate satisfactorily (factorial charge<0.50), thus being excluded. Therefore, the 30-item model had acceptable fit [$X^2(385) = 545.11$; $X^2 / df=1.42$; CFI=0.90; GFI=0.89; TLI = 0.89; RMSEA = 0.05; $P(rmsea<0.05)=0.637$].

Procedures

The study is integrated with the institutional project approved by the Ethics Committee in Research under the protocol n. 085.08. Initially, contact was made with the board of directors and technical commission of the soccer club and with the soccer schools accredited by the club in the state of Paraná. Afterwards, the free and informed consent term was sent to the athletes or parents/guardians (underage players). The data collection took place at the training site of the athletes and lasted approximately 30 minutes.

Statistical Analysis

The preliminary analysis of the data was performed by testing normality through Kolmogorov Smirnov's Test. As the non-normality of the data was shown, the descriptive statistics were presented using the median (Md) and interquartile range (Q1-Q3). Mann-Whitney's 'U' Test was used for the comparison of traits of perfectionism and coping between. Spearman's correlation coefficient was used to verify the correlation between variables ($p < .05$). All analyses were conducted in the language R program, through the qgraph package.

To verify the impact of the traits of perfectionism on athletes' coping strategies, models of path analysis were conducted with the variables that obtained significant correlation ($p < .05$). The existence of outliers was evaluated by the square distance of Mahalanobis (DM2) and the univariate normality of the variables was evaluated by asymmetry (iski<) and uni and multivariate kurtosis (IKu<10). As our data did not show normal distribution, we conducted the Bollen-Stine Bootstrap technique to correct the value of the coefficients estimated by the maximum likelihood estimation method (Marôco, 2010), implemented in the AMOS software version 22.0. No values of DM2 indicators of the existence of outliers were observed, nor were there any correlations between variables indicating multicollinearity problems (Variance Inflation Factors < 5.0). Based on the recommendations of Kline (2015), the interpretation of regression coefficients was based on: small effect for coefficients $< .20$, moderate effect for coefficients up to $.49$, and high effect for coefficients $> .50$.

Results

Results showed that (Table 1) professional soccer players were more organized ($p = .008$) and with higher levels of personal fulfillment standards ($p = .029$), characteristics which are considered as specific areas of PS. On the other hand, non-professional athletes showed greater scores regarding parental criticism ($p = .001$), which is a specific field of PC.

Table 1. Comparison traits of perfectionism of professional and non-professional players.

Traits of perfectionism	Professional			Non-Professional			<i>P</i>
	Md	Q1	Q3	Md	Q1	Q3	
Concern Over Mistakes	2.89	2.33	3.33	2.89	2.22	3.44	.816
Doubts about action	2.75	2.50	3.25	3.00	2.50	3.50	.053
Perceived Parental Pressure	2.60	2.20	3.40	3.20	2.60	3.60	.004*
Parental criticism	2.00	1.50	2.50	2.50	2.00	3.25	.001*
Personal Standards	3.71	3.29	4.14	3.57	3.00	4.00	.029*
Organization	4.00	3.67	4.33	3.83	3.50	4.33	.008*

* Significant difference ($p < .05$).

Regarding the coping strategies (Table 2), it was noted that the professional players use more the confidence/achievement motivation ($p = .049$), peaking under pressure ($p = .001$) and goal setting/mental preparation ($p = .029$) when compared to non-professional athletes, highlighting that professional athletes who have a greater commitment to the sport use more psychological resources to overcome the stressful agents.

Table 2. Comparison of the coping strategies used by professional and non-professionals players.

Coping strategies	Professional			Non-professional			<i>P</i>
	Md	Q1	Q3	Md	Q1	Q3	
Peaking Under Pressure	2.25	1.75	2.75	2.00	1.50	2.25	.001*
Freedom From Worry	1.50	1.00	2.00	1.50	0.75	1.75	.562
Confrontation with adversity	2.00	1.75	2.50	2.25	1.75	2.50	.266
Concentration	2.00	1.75	2.25	1.75	1.50	2.25	.086

Goal Setting/Mental Preparation	2.00	1.75	2.50	2.00	1.50	2.25	.029*
Confidence/Achievement Motivation	2.50	2.25	2.75	2.25	2.00	2.50	.049*
Coachability	2.25	1.75	2.50	2.25	1.75	2.75	.968

* Significant difference ($p < .05$).

When analyzing the correlation between the traits of perfectionism and the coping strategies of professional athletes (Figure 1), it was observed that the domain of personal standards showed a significant and moderate correlation with the strategies of confrontation with adversity. ($\rho = .478$), Concentration ($\rho = .428$) and goal setting ($\rho = .442$). Another significant correlation was between the perfectionistic orientation of organization and the strategy of goal setting ($\rho = .445$).

Regarding non-professional athletes, there was significant and moderate correlation between Parental criticism and coachability ($\rho = .441$). Following the analysis of the correlation, a path analysis model was conducted among the variables that showed significant correlation.

Fig 1. Network of correlations between the dimensions of perfectionism and the coping strategies of non-professional (A) and professional (b) players.

Note: COM- Concern Over Mistakes; DAA-Doubts about action; PPP- Perceived Parental Pressure; PC- Parental criticism; PS- Personal Standards; ORG-Organization; AP- Adjusted Perfectionism; MP- Misfit Perfectionism; CO-Coachability; FFW- Freedom From Worry; PUP- peaking under pressure; GSMP- Goal Setting/Mental Preparation; DWA- Deal with adversity; C- Concentration; CAM- Confidence/Achievement Motivation. Stems representing correlations $> .20$.

It should be noted that the standards of personal achievement of professional players affected positively and significantly ($p < .05$) the use of coping strategies to confront adversity (23%), concentration (14%) and formulation of objectives (19%) (Figure 2). In the other adaptive domain, the organization presented a 20% effect on the formulation of goals of the same athletes.

Such results have thus highlighted the adaptive orientation of perfectionism on coping of athletes belonging to professional training environments. For non-professional athletes (Figure 2), it was observed that Parental criticism, a specific area of poorly adapted perfectionism, had a negative effect on the training strategy (18%) of sportsmen who practiced soccer in schools.

Fig 2. Path analysis model of the impact of perfectionism on the coping strategies of soccer athletes.

Regarding the individual trajectories of the model for professional athletes (Table 3), results showed that the increase in standards of personal achievement had a moderate effect ($\beta > .20$) on the coping strategies of confrontation with adversity (.48), concentration (.37) and formulation of objectives (.44). For non-professional athletes (Table 3), it was noted that the parental criticism showed a moderate and negative effect ($\beta = -.42$) on athletes' coachability.

Table 3. Coefficients of the path analysis model for professional and non-professional players.

Outcome variable	Predictor variable	β	3	Standard Error	Critical Ratio	p
Professional Athletes						
Deal with adversity ($R^2=0.23$)		.47	.48	.11	4.25	.001*
Concentration ($R^2=0.14$)	Personal Standards	.42	.37	.10	4.18	.001*
Goal setting ($R^2=0.19$)		.44	.44	.10	4.83	.001*
Goal setting ($R^2=0.20$)	Organization	.44	.45	.12	4.95	.001*
Non-professional athletes						
Coachability ($R^2=0.18$)	Parental criticism	-.44	-.42	.06	-5.05	.001*

Path analysis model for non-professional (simple) and professional (simple and multiple) athletes)-* $p < 0.05$.

Dicussion

Although the relationships between perfectionism and coping strategies in sport are to some extent consistent and established in literature, this study advances in the field of knowledge by analyzing such relationships in soccer players from different training environments. Thus, these findings become relevant as the relationships between perfectionist orientations and the coping strategies of athletes who are part of systematic (professional) training environments and athletes who practice soccer in (non-professional) soccer schools are identified. In general, it was observed that PS (personal standards and organization) had a positive impact on the coping strategies of professional players. For non-professional players, it was noted that parental criticism (PC) had an inverse (negative) effect on athletes training.

Thus, our results suggest that athletes who reside in training centers and participate in daily and systematic Sessions, show greater commitment to the sport, high levels of personal achievement standards and extreme organization and discipline within the lived context (Stambulova, Engström, Franck, Linnér, & Lindahl, 2015). Such characteristics (PS) influence the ability of the sportsman to employ positive coping strategies, such as formulating goals, overcoming adverse situations and concentrating to present the best possible performance (Hill & Madigan, 2017; Hill et al., 2019; Hill, Mallinson-Howard, & Jowett, 2018).

Therefore, these athletes have better psychological skills to confront the stressful agents of the environment in which they live, directing more effort to the daily tasks, thus reflecting the positive aspects of the orientation PS on the strategies of coping (Skinner & Edge, 2002). This relationship confirms the evidence already established in the literature regarding the adaptable nature of establishing high performance standards in the high performance sports context (Stoeber, 2018; Stoeber et al., 2017; Strubel & Petrie, 2017).

The findings of this study point out that personal standards and organization reflect only the role of adaptive orientation of perfectionism over coping strategies (Figure 2), unlike investigations of Gaudreau and Antl (2008) and McArdle and Duda (2004), which have seen less adaptable guidance in such areas, verifying associations of self-employed patterns of self-employment with controlled motivation (Madigan, Stoeber, & Passfield, 2016; Stoeber & Madigan, 2016) and negative coping strategies (Mouratidis & Michou, 2011). Similar to this research, the studies cited were carried out with athletes of different competitive levels, who participated in systematic training and had greater commitment to the sports career. However, the differences regarding the coping strategies used by the athletes can be attributed to several factors, including the cultural one.

Regarding non-professional players, it was noticed that parental criticism had a negative impact on the coaches of these sportsmen (Figure 2). Thus, it is noticed that for athletes participating in soccer schools and that do not yet have great perspectives within the sport, the criticisms and pressure of the parents are elements that negatively influence the participation of these athletes in training and competitions and, consequently, in the continuity of the sports practice (Neely, McHugh, Dunn, & Holt, 2017). Similar results were found in investigations with young athletes from different sports (McArdle & Duda, 2004; Mouratidis & Michou, 2011).

Such investigations found that athletes in sports training/initiation tend to be more influenced by parents' expectations and criticisms (orientation of PC), since they do not have the same psychological skills as most engaged and committed athletes use for the stressful demands of the sporting context. However, Cosh and Tully (2015), when investigating stressful factors and coping of university athletes, found that they used few coping strategies, but reported that the support of parents and coaches was paramount.

Another important finding of the present study refers to the comparison of the Traits of perfectionism between the two groups (Table 1), since the professional soccer players presented more orientation in the domains of PC (Organization-Personal Standards). This evidence has been confirmed by previous studies (Stoeber, 2018; Stoeber et al., 2017), who associated this result with the fact that high-performance athletes present high standards of personal achievement and are extremely organized and disciplined (Stoeber, 2017). On the other hand, the non-professional athletes presented greater scores regarding parental criticism (Table 1), which is a specific orientation of PC, highlighting that athletes from non-systematized training environments consider the participation of parents as excessively critical when it comes to their performance (Hall, Kerr, Kozub, & Finnie, 2007).

It was noticed that professional players used coping strategies more efficiently than non-professional ones (Table 2). Professional players were more confident and motivated to face the stressful demands of the sporting context. Such characteristics are indispensable in high performance sports, since keeping the focus and positive thinking during stressful situations are factors that favor the emotional stability of the athlete (Cosh & Tully, 2015; Nicholls et al., 2012). In addition, professional players play better under pressure and external pressure, highlighting that the more they are required by coaches, media or family, the better the performance in games and competitions will be (Geukes, Mesagno, Hanrahan, & Kellmann, 2012). However, the ability to set objectives that guide actions is greater in professional athletes, and these objectives can serve as a stimulus for the achievement of goals and sports success (Stoeber, 2018; Stoeber et al., 2017; Stoeber et al., 2016).

Although the results of this study provide important contributions to literature regarding the relationship between perfectionist orientations and coping strategies in athletes belonging to different training environments, some limitations need to be taken into account. First, athletes belonging to the training center (professional) and soccer schools (non-professional) of only one professional soccer team were evaluated, which does not represent the reality of the country's soccer athletes. Nonetheless, the sample can be considered relevant because the athletes of an important club of the Brazilian first division were analyzed. Another limitation refers to the design used to analyze the relationship between perfectionism and coping strategies, since the results are based on cross-sectional data, not allowing causality inferences. Thus, future investigations should continue to explore the relationships between such variables, analyzing players from other regions of the country and the use of longitudinal models, in order to establish new evidence on the impact of perfectionist orientations on coping strategies over time.

Conclusions

It was concluded that adaptive perfectionism is a determining factor for the use of coping strategies and the overcoming of stressful demands in professional athletes. On the other hand, for non-professional athletes, parental criticism (PC) was considered a negative factor for training, indicating that for athletes from soccer schools, parents' criticism damages the ability of athletes to overcome the agents that are strained from the sports context through training. Some practical implications can be pointed out for professionals working in the context

of soccer. First, the psychological accompaniment of young athletes can contribute to the development of personality traits that adapt to the demands of the competitive context, with the aim of developing positive psychological skills for the development of the sports career. In addition, soccer school coaches must be aware of parental involvement during training and games, since critical behaviors can compromise the sports development of their children/athletes.

Conflicts of interest - The authors declare no conflicts of interest.

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