The relationship between multidimensional perfectionism and pre-competition emotions of youth footballers

Abstract

Objectives

Research has found that trait and dispositional perfectionism are related to pre-competition emotions. However, less is known about whether other aspects of perfectionism, such as perfectionistic cognitions, are related to pre-competition emotions. To address this limitation, the current study examined (i) the relationship between self-oriented and socially prescribed perfectionism and pre-competition emotions, and (ii) whether perfectionistic cognitions predict pre-competition emotions after controlling for these two dimensions of perfectionism.

Design

A cross-sectional survey.

Method

Two hundred and six youth footballers (*M* age = 15.54 years, *SD* = 1.93) completed self-report measures prior to their next competition.

Results

Regression analyses revealed socially prescribed perfectionism was a positive predictor of anger, while self-oriented perfectionism was a positive predictor of excitement. After controlling for self-oriented and socially prescribed perfectionism, perfectionistic cognitions were a positive predictor of anxiety, anger, and dejection.

Conclusion

The findings suggest that perfectionistic cognitions are important in regard to pre-competition emotions.

Keywords: adolescents; sport; cognitions; anxiety; anger; dejection

Introduction

How an athlete feels prior to competition is important. Pre-competition emotions have been shown to influence the behavioural, motivational, physical, and cognitive functioning of athletes (e.g., Martinent & Ferrand, 2009). Athletes experiencing positive pre-competition emotions are normally better prepared, braced for competition, and energised, whereas athletes experiencing negative pre-competition emotions are more prone to being ill-prepared, distracted, and having displaced energy (e.g., Vast, Young, & Thomas, 2010). Apart from the implications for performance, over time, pre-competition emotions will also likely influence athlete wellbeing. Again, positive emotions are conducive to better wellbeing and negative emotions are not (Diener, 2000). Research suggests that athletes vary considerably in the emotions that they experience before competition with many athletes regularly reporting difficulty managing their emotions (Campo et al., 2016). Therefore, in order to better understand why some athletes report more negative and less positive pre-competition emotions, and vice versa, it is necessary to identify the factors which explain the differences between athletes in their pre-competition emotions.

Emotions are complex experiences of consciousness, bodily sensation, and behaviour that reflect the significance of an event (Barrett Mesquita, Ochsner, & Gross, 2007). Although emotion, mood, and affect are often used interchangeably, emotion is distinct from mood and affect. Emotions (e.g., happiness) are generally short in duration, high in intensity, and relate to specific events (Lazarus, 2000). Mood (e.g., a good mood), by contrast, is a more prolonged experience encompassing a global set of emotions. We experience mood on a day-to-day basis and it is relatively long-lasting, lower in intensity, and less specific than emotion (Ekkekakis, 2013). Moods can occur without a specific event whereas emotions are activated by a significant event. For example, when a person is angry, that person is typically angry about something specific, whereas someone can feel down without an obvious reason.

Finally, affect refers to two broad aspects of all emotional experiences: hedonic (pleasure-displeasure) and arousal (sleepy-activated) (Barrett et al., 2007). Affect is categorised into positive (e.g., feeling good) and negative (e.g., feeling bad) experiences, is experienced continually, but has varying degrees of intensity over time.

One popular approach to understanding emotions is cognitive-motivational-relational theory (CMR; Lazarus, 1991). In this theory, emotions are deemed to arise from the interdependent effects of primary and secondary appraisal of meaningful events (Lazarus, 2000). Primary appraisal determines whether a situation or an event is personally relevant and congruent with an athlete's goals and core values. Secondary appraisal represents an evaluation of perceived coping options, which then forms the basis for behaviour. Lazarus argued that different emotions emerge because of broadly different appraisal patterns and that each emotion is underpinned by a core relational theme. A core relational theme is the perception of benefit or harm underlying positive and negative emotions. For example, a positive emotion (e.g., happiness) is considered to emerge when individuals appraise progress towards a goal, whereas a negative emotion (e.g., anxiety) is believed to arise when individuals appraise uncertain existential threat.

Athletes can express a range of pre-competition emotions both positive (e.g., excitement and enjoyment) and negative (e.g., anxiety, anger, and dejection) (Jones, Lane, Bray, Uphill, & Catlin, 2005). The function of these emotions is complex. Some pre-competition emotions can facilitate performance but the same emotion, under different circumstances, may impair performance (Hanin, 2010). For example, anxiety, an emotion underpinned by a core relational theme of facing uncertain existential threat, is a common and normal experience for athletes and can fuel greater mental effort when experienced as facilitative (Campo et al., 2016). However, anxiety may also cause muscle tension, concentration disruption, and impaired performance (Hanin, 2010). Anger is similar in its

complexity. Anger, an emotion underpinned by the core relational theme of a demeaning offence against me and mine, has the potential to mobilize energy and therefore improve performance but may also impair performance because it can disrupt the focus of attention, decision-making, and skill execution (Campo et al., 2016). Notwithstanding these complexities, generally, negative emotions are considered more undesirable than positive emotions because they are more likely to drain energy, overload attention, and decrease readiness for competition, whereas positive emotions are likely to energize behaviour and help maintain mental states that are conducive to better performance (Hanin, 2010).

Personality as a critical antecedent of emotion

Personality characteristics influence the experience of emotions as they imbue achievement contexts with meaning that affects the appraisal process (Duda & Hall, 2001). They can also encapsulate goals, intentions, and coping behaviours that are relevant to the overall stress/emotion process (Lazarus, 2000). For these reasons, researchers and practitioners have been interested in identifying personality characteristics that may provide resiliency, or may confer vulnerability, in emotion and stress-related processes. Research has found several personal factors that may buffer individuals from stress and negative emotions during primary appraisal by increasing the likelihood of a significant event being appraised as challenging rather than as threatening. These factors include self-confidence, task orientation, and conscientiousness (Nicholls & Polman, 2007). Conversely, other personal factors have been found to increase stress and negative emotions by increasing the likelihood of a significant event being appraised as threatening and that the demands of the situation exceed coping resources. These factors include (low) self-esteem, ego orientation, and neuroticism (Nicholls & Polman, 2007). With these findings in mind, it is evident how in response to the same events, personality characteristics will contribute to how “people perceive themselves

differently, think differently, cope differently, and experience and display emotions differently" (Lazarus, 1998, p. 213).

Perfectionism is a multidimensional personality characteristic which reflects the need to perfect the self (Hewitt, Flett, & Mikail, 2017). Some researchers consider perfectionism to be a disposition (e.g., Stoeber, Corr, Smith, & Saklofske, 2018), whereas others consider it to be a trait (e.g., Hewitt et al, 2017). Hewitt and Flett's (1991) model of perfectionism includes three trait dimensions: perfectionistic standards directed toward the self (self-oriented perfectionism; SOP), directed toward others (other-oriented perfectionism; OOP), or perceived to be directed from others (socially-prescribed perfectionism; SPP). SOP and SPP are particularly relevant to this study. This is because both of these dimensions are related to personal outcomes. In the case of SPP, it is related only to negative outcomes. In the case of SOP it is more ambivalent as it is related to both negative and positive outcomes (e.g., Stoeber & Childs, 2010). On the role of SOP and SPP in stress/emotion processes, Hewitt and Flett (2002) describe processes of stress generation, anticipation, perpetuation, and enhancement. Underscoring these processes is the notion that unrealistic goals are tied to self-worth and that a preoccupation with the importance of goals features heavily in the way meaning is given to attainment. These features in turn influence the thoughts experienced when pursuing goals including prompting the experience of self-defeating cognitive styles (e.g., rumination), the tendency to catastrophize and exaggerate the consequences of failing, and unconstructive coping behaviours (e.g., avoidance) (Flett & Hewitt, 2016).

When considering the relationship between perfectionism and pre-competition emotions, specifically, competition provides an especially important situation for athletes with higher levels of SOP and SPP. For both SOP and SPP, competition offers a means of self-validation, enhancement, or annihilation, when important goals are achieved or not. However, based upon the features of SOP and SPP, the specific emotions experienced are

likely to be different. SOP is complicated in that movement towards goals is possible due to greater perceived control over personally meaningful goals (i.e., SOP is associated with the pursuit of personal goals). As such, the anticipatory experience prior to competition may include both positive emotions associated with the possibility of success and negative emotions associated with the possibility of failure. Conversely, SPP includes goals over which the individual has little control (i.e., SPP is associated with the pursuit of goals imposed by others). In which case, there is little opportunity for respite from negative emotional experiences via goal attainment. The anticipatory experience prior to competition is therefore more likely to be dominated by negative emotions as personal effort is considered largely futile and failure, to some degree, is likely to be perceived as inevitable.

There is a significant amount of research which examines SOP, SPP and general emotions outside of sport (e.g., in university students, school-aged children, and adult community samples). This research indicates that SPP is consistently associated with negative emotions. SPP has displayed significant positive and small-to-medium relationships with anger, anxiety, and sadness (e.g., Hewitt & Flett, 1991, Hewitt & Flett, 2002; Stornelli, Flett & Hewitt, 2009). SPP has also displayed a significant negative and small relationship with happiness (e.g., Stornelli et al., 2009). The relationship between SOP and emotions, on the other hand, is less straightforward**.** In relation to specific emotions, SOP has displayed a significant positive and small-to-medium relationships with anxiety, anger, and sadness (e.g., Flett, Hewitt, & Cheng, 2008; Saboonchi & Lundh, 2003; Smith et al., 2016), whereas on other occasions these relationships have been non-significant (e.g., Akram, Ellis, Myachykov, Chapman, & Barclay, 2017). In regard to positive emotions, SOP has displayed a significant negative and small relationship with happiness (e.g., Stornelli et al., 2009), whereas on other occasions this relationship has been non-significant (e.g., Flett et al., 2008). SOP has also displayed a significant positive and medium relationship with enjoyment (Flett et al., 2016).

Findings outside of sport are comparable to those in sport. Perfectionism has been examined in relation to general emotions (i.e., emotions associated with sport participation) and emotions following mistakes, and mainly in regard to negative emotions. In terms of this research, significant positive and small-to-medium relationships have been found between perfectionism dimensions similar to SOP and SPP and negative emotions in the form of anxiety, anger, and dejection (e.g., Dunn, Gotwals, Causgrove Dunn, & Syrotuik, 2006; Lizmore, Dunn, & Causgrove Dunn, 2016; Martinent, Ferrand, Guillet, & Gautheur, 2010). In regard to pre-competition emotions, the majority of studies have focused on anxiety. Dimensions of perfectionism similar to SOP and SPP displayed significant positive and small-to-medium relationships with cognitive anxiety in the lead up to competition in some studies (e.g., Hall, Kerr, & Matthews, 1998), whereas other studies have found that the relationship between personal standards (a dimension of perfectionism similar to SOP) and pre-competition anxiety to be non-significant (e.g., Frost & Henderson, 1991). There is also some research examining anger in sport, which has found significant positive and small-to-medium relationships between concern over mistakes (a dimension of perfectionism similar to SPP) and trait anger and anger in response to mistakes during performance (e.g., Dunn et al., 2006). However, to our knowledge, the relationship between perfectionism and pre-competition anger has not been examined. This is also the case generally in research regarding other pre-competition emotions in sport. The first purpose of the present study is to build on existing research by examining, for the first time, whether multidimensional perfectionism (SOP and SPP) predicts a range of pre-competition emotions in sport (anxiety, anger, dejection, happiness, and excitement).

Perfectionistic cognitions and emotion

It is likely that some of the emotions associated with trait or dispositional perfectionism are a result of a ruminative response style. Perfectionistic cognitions are

frequent automatic thoughts and images about the need to be perfect (Flett, Hewitt, Boucher, Davidson, & Munro, 1998). These thoughts are characterized by recurrent thoughts about the self-imposed pressure to be flawless, such as, "Why can't I be perfect?" and "I should be perfect" (Flett et al., 1998). Perfectionistic cognitions are a state-like manifestation of perfectionism but their occurrence reflects a stable feature of a perfectionist's cognitive experience when they are chronically activated (Hewitt et al., 2017). Nevertheless, because perfectionistic cognitions reflect a preoccupation with the attainment of perfection they tend to be activated by perceived failure or stressful events (Hewitt et al., 2017). Following a stressful event, perfectionistic individuals engage in rumination about falling short of their ideal standard and, therefore, rumination plays an important role in the subsequent emotions and distress they experience.

The majority of research that has examined perfectionistic cognitions has been outside of sport. Together with a strong relationship with SOP and SPP, this research has found a positive relationship between the frequency of perfectionistic cognitions and a range of negative emotions and stress-related factors. Frequent perfectionistic cognitions have been associated with self-criticism, negative forms of cognitive-emotion coping, and deficits in positive forms of cognitive-emotion coping (e.g., Macedo et al., 2017). Frequent perfectionistic cognitions have also been found to have a significant positive and medium-to-large relationship with negative affect and a number of specific emotions, such as anxiety, anger, and depressive symptoms (e.g., Flett et al., 1998). In addition, Flett and colleagues have found that frequent perfectionistic cognitions were a unique predictor of anxiety and depression after controlling for trait perfectionism (e.g., Flett, Hewitt, Whelan, & Martin, 2007). Therefore, as suggested by Flett et al. (2007), the frequency of perfectionistic cognitions appears to offer additional information about the emotional experiences associated with perfectionism.

Research that has examined the experience of perfectionistic cognitions in sport is sparse. In one of two studies to date, Appleton, Hall, and Hill (2011) found that parent-initiated motivational climates were a significant predictor of athletes' perfectionistic cognitions. Specifically, athletes engage in more perfectionistic cognitions when they perceive that their parents create an achievement climate that is highly critical and disapproving of mistakes during competition. In the other study, Hill and Appleton (2011) examined the relationship between perfectionistic cognitions and symptoms of athlete burnout. Perfectionistic cognitions displayed significant positive and small relationships with reduced sense of accomplishment, physical/emotional exhaustion, and sport devaluation. In this study, perfectionistic cognitions also explained unique variance in burnout dimensions beyond dispositional perfectionism (SOP and SPP in context of sport). These findings suggest that not only is the sport environment potentially important in directing athletes' thoughts towards perfectionistic cognitions, but such cognitions may play a role in negative emotional experiences, such as burnout. Based on this research, it is reasonable to suggest that frequent perfectionistic cognitions may also play a wider role in regard to the pre-competition emotions experienced by athletes.

The present research

The current study had two purposes: (i) to examine the relationships between SOP and SPP, as manifested in sport, and pre-competition emotions in youth footballers and (ii) to examine whether perfectionistic cognitions predict pre-competition emotions after controlling for SOP and SPP. It was hypothesised that SPP will positively predict more negative emotions (anxiety, anger, and dejection), and SOP will positively predict both positive (happiness and excitement) and negative emotions (anxiety, anger, and dejection). It was also anticipated that frequent perfectionistic cognitions would positively predict positive and negative emotions after controlling for SOP and SPP.

Method

Participants and procedure

Participants were 206 high level youth footballers (male = 78, female = 128, *M* age = 15.53 years, *SD* = 1.93, range = 11 to 19 years) recruited from sports clubs, sports academies, and national teams across the United Kingdom. Their average length of sport participation was 9.07 years (*SD* = 2.98, range = 1 to 17 years). Informed consent was gained from each participant (and parent/guardian if under 18 years old) prior to completing the questionnaire. The questionnaire was completed either at their training venue or competition location between 45 minutes and 120 hours (i.e. 5 days) before their next game. The average time until their next game was 24.32 hours (*SD* = 25.79). Participants were asked to indicate the importance of their next competitive match on a scale of 1 (*not important*) to 7 (*very important*). The average importance rating was 5.70 (*SD* = 1.49).

Measures

The Child and Adolescent Perfectionism Scale (CAPS). The CAPS (Flett, Hewitt, Boucher, Davidson, & Munro., 1997) is a multidimensional perfectionism scale for use with children and adolescents and measures self-oriented perfectionism (SOP) and socially prescribed perfectionism (SPP). It contains 22 items rated on a 5-point scale (1 = *not at all true of me*, 5 = *very true of me*). The stem of the instrument was adapted to focus athletes on their participation in sport ("When practicing/playing football..."). By making this amendment the measure captures dispositional perfectionism (e.g., perfectionism specific to the domain of sport). Evidence for the validity and reliability of the scale has been provided by Hewitt, Caelian, Flett, Collins, and Flynn (2002). Researchers have suggested that this scale also has adequate psychometric properties when used to measure dimensions of perfectionism in athletes (e.g., Appleton, Hall, & Hill, 2009).

Due to the multiple factors structures reported for the CAPS (e.g., Flett et al., 1997, McCreary, Joiner, Schmidt, & Ialongo, 2004, O'Connor, Dixon, & Rasmussen, 2009), we used ESEM to examine the factor structure of the CAPS in the current study. For the analyses we used robust maximum likelihood estimator (MLR) in MPLUS 7.4 (Muthén & Muthén, 2008) and TARGET rotation to guide cross-loadings with a target value of approximately zero (Asparouhov & Muthén, 2009). We used commonly adopted recommendations to assess fit (Hu & Bentler, 1999; Marsh, Hau, & Wen, 2004). Adequate fit was noted if $\chi^2/df < 3.00$; RMSEA = <.08, CFI = >.90 and TLI = >.90; SRMR = <.08, BIC = lower represents better fit. Using these fit indices, the original CAPS structure provided less than adequate fit: $\chi^2(208) = 626.55$, $p < .001$; $\chi^2/df = 3.01$; RMSEA = .10; CFI = .71; TLI = .68; SRMR = .11; BIC = 12123.34. So did the two alternative structures identified by other researchers: (1) McCreary et al. (2004): $\chi^2(74) = 194.96$, $p < .001$, $\chi^2/df = 2.63$; RMSEA = .09; CFI = .87; TLI = .84; SRMR = .08; BIC = 7468.33; (2) O'Connor et al. (2009): $\chi^2(74) = 226.92$, $p < .001$, $\chi^2/df = 3.07$; RMSEA = .10; CFI = .84; TLI = .80; SRMR = .07; BIC = 7573.40.

With this in mind, we used exploratory factor analysis (a combination of principal components analysis and principal axis factoring with parallel analysis) to derive a more psychometrically sound version of the CAPS that matched Flett et al.'s (1997) proposed structure. We identified that a two-factor version of the CAPS consisting of 10 items with the highest loading factors was the most robust in regard to exploratory and exploratory-confirmatory structure. For the subsequent ESEM, this model provided adequate fit: $\chi^2(34) = 61.12$, $p < .001$; $\chi^2/df = 1.75$; RMSEA = .06; CFI = .95; TLI = .94; SRMR = .06; BIC = 5299.68. SOP was comprised of items 1, 2, 6, and 7 and SPP was comprised of items 5, 8, 10, 12, 17, and 19. In support of the use of this version, it had adequate internal reliability (SOP: $\alpha = .72$, SPP: $\alpha = .88$) and was highly correlated with the full-length version of the CAPS (SOP: $r = .75$, $p < .001$, SPP: $r = .97$, $p < .001$).

Perfectionistic Cognitions Inventory (PCI). The PCI (Flett et al., 1998) is a 25-item measure of the frequency of experiencing perfectionism-related thoughts. Participants indicate how frequently they experienced each of the cognitions (e.g., "Why can't I be perfect?") over the last week on a 5-point scale (0 = *not at all*, 4 = *all of the time*). Higher scores indicate more frequent perfectionistic thinking. Evidence to support the validity and reliability associated with the scale has been provided by Flett et al. (1998). The PCI has also been used for investigations in sport (e.g., Hill & Appleton, 2011).

We also conducted ESEM to examine the factor structure of the PCI given that there is debate regarding its unidimensional versus multidimensional structure (see Stoeber, Kobori, & Brown, 2014a, 2014b). The same procedures were used as for the CAPS. Using the fit indices described above, the 25-item unidimensional PCI provided less than adequate fit: $\chi^2(275) = 622.06$, $p < .001$; χ^2 /df = 2.26; RMSEA = .08; CFI = .76; TLI = .74; SRMR = .08; BIC = 14787.46. So did the 3-factor structure advocated by Stoeber et al. (2014): $\chi^2(116) = 236.56$, $p < .001$; χ^2 /df =2.04; RMSEA = .07; CFI = .87; TLI = .85; SRMR = .07; BIC = 10175.46.

As with the CAPS, using exploratory factor analysis (again, a combination of principal components analysis and principal axis factoring with parallel analysis with parallel analysis) we identified that a unidimensional version of the PCI consisting of the 10 items with the highest factor loadings was the most robust in regard to exploratory and exploratory-confirmatory structure. For the subsequent ESEM, this model provided adequate fit: $\chi^2(35) = 72.29$, $p < .001$; χ^2 /df = 2.07; RMSEA = .07; TLI = .91; CFI = .93; SRMR = .05; BIC = 5858.61. PCI items were 3, 8, 10, 12, 15, 16, 17, 19, 22, and 25. In support of the use of this version (PCI-short), it had high internal reliability ($\alpha = .87$) and was highly correlated with the full-length version of the PCI ($r = .95$, $p < .001$).

Sport Emotion Questionnaire (SEQ). The SEQ (Jones et al., 2005) is a 22-item measure of the emotions athletes commonly experience prior to competition. The SEQ examines five emotions which can be grouped into two higher-order dimensions: negative emotions (anxiety, anger, and dejection), and positive emotions (happiness and excitement). The participants were asked to indicate "how they feel right now, at this moment" in relation to their upcoming sports competition on a 5-point scale (0 = *not at all,* 4 = *all of the time*). Jones et al. (2005) have provided evidence of the reliability and validity of the SEQ. As with the two other instruments we assessed the factor structure of the SEQ. The original five-factor model provided acceptable fit: $\chi^2(199) = 347.04$, $p < .001$; $\chi^2/df = 1.74$; RMSEA = .06; CFI = .93; TLI = .92; SRMR =.06; BIC = 10684.34.

Analytical approach

To test the hypotheses, we conducted five hierarchical regression analyses (one for each emotion). As differences in anticipatory emotions are likely to depend on how proximal to the event assessments are taken (e.g., Hanton, Thomas, & Maynard, 2004), we used the time until competition ('time') as a covariate in the main analysis. In Step 1, a predictor block consisting of time was entered. In Step 2, a predictor block consisting of SOP and SPP was entered so to assess the unique predictive ability of each dimension. Finally, in Step 3, a predictor block consisting of perfectionistic cognitions was entered so to evaluate the incremental predictive ability of perfectionistic cognitions.

Results

Preliminary analysis

Due to missing data from individual responses (> 5%), two participants were removed from the sample. Once these values were removed, there were 174 complete cases and 30 cases with incomplete data. In the cases of incomplete data, the average of missing data due

to non-response was 1.82% (*SD* = 0.75, range = 1.45 to 4.35%). Each missing item was replaced using the mean of each case's available non-missing items from the relevant subscales. This method of imputation is considered to be an appropriate strategy when the amount of missing data is low (Graham, Cumsille, & Elek-Fisk, 2003).

Next, internal reliability analysis (Cronbach's alpha) was performed on each subscale. Internal consistencies are displayed in Table 1. All scales demonstrated sufficient internal consistency ($\alpha > .70$). The measured variables were then screened for univariate outliers (see Tabachnick & Fidell, 2013). Standardized z-scores +/- 3.29 ($p < .001$, two-tailed) were used as criteria for detecting univariate outliers. This procedure led to the removal of seven participants. Because multivariate outliers can distort the results of correlation and regression analysis, we removed one participant with a Mahalanobis distance larger than the critical value of $\chi^2(8) = 21.96$ ($p < .001$). The final sample was 196 participants.

When testing for normality, the dejection and anger variable were positively skewed (dejection skewness = 1.97, *SE* = 0.17; anger skewness = 1.74, *SE* = 0.17). All other variables were considered univariate normal (absolute skewness: mean = -0.26, *SE* = 0.17; absolute kurtosis: mean = -1.04, *SE* = 0.35). The two skewed variables (dejection and anger) were subsequently transformed as per the guidelines provided by Tabachnick and Fidell (2013). The transformed variables were substantially less skewed (dejection skewness = 0.37, *SE* = 0.17; anger skewness = 0.47, *SE*= 0.17) and both had a significant positive and large linear relationship with the original variable (dejection: *r* = .81; anger: *r* = .85). These transformed variables were used in subsequent analyses.

Descriptive statistics, reliability, and bivariate correlations

Means, standard deviations, reliability coefficients, and bivariate correlations are reported in Table 1. Participants reported high levels of SOP (5-point scale), moderate levels

of SPP (5-point scale), and moderate levels of perfectionistic cognitions (5-point scale). The sample also reported low-to-moderate levels of pre-competition emotions. Notably, the levels of anger and dejection were low. Overall, the descriptive statistics suggest that, in regard to pre-competition emotions, the youth footballers had largely positive experiences, with few of them reporting negative experiences. Pearson correlation coefficients were computed between SOP, SPP, perfectionistic cognitions, and pre-competition emotions (Table 1). Using Cohen's recommendation (1988), both SOP and SPP displayed a significant positive and medium relationship with perfectionistic cognitions. Also of note, SOP displayed a significant positive and small relationship with anxiety and excitement, while SPP displayed a significant positive and small relationship with dejection and anger. There were no significant relationships between SOP and SPP and happiness. The frequency of perfectionistic cognitions displayed significant positive and small-to-medium relationships with anxiety, dejection, and anger.

Hierarchical regression analyses

The results of the hierarchical regression analyses are reported in Table 2. The first hierarchical regression included anxiety as the criterion variable. Time was not a significant predictor of anxiety. SOP and SPP accounted for an additional 1% of variance in anxiety. This was not statistically significant increase or model. Entering the frequency of perfectionistic cognitions resulted in an additional 11% of variance being explained in anxiety. This increase was statistically significant.

The second hierarchical regression included dejection as the criterion variable. Time was not a significant predictor of dejection. SOP and SPP accounted for an additional 2% of variance in dejection. This was not a statistically significant increase or model. Entering the frequency of perfectionistic cognitions resulted in an additional 4% of variance being explained in dejection. This increase was statistically significant.

The third hierarchical regression included excitement as a criterion variable. Time was a significant negative and small predictor of excitement and it accounted for 3% of variance in excitement (i.e., as the time until the match decreases, excitement increases). SOP and SPP accounted for an additional 4% of variance in excitement. This increase was statistically significant. SOP was a significant positive and small predictor. Time continued to be a significant negative and small predictor. Entering the frequency of perfectionistic cognitions did not account for any significant additional variance. Both time and SOP continued to be significant predictors of excitement.

The fourth hierarchical regression included anger as the criterion variable. Time was not a significant predictor of anger. SOP and SPP accounted for 3% of variance in anger. This was not a statistically significant increase or model. However, it is noteworthy that SPP was a significant positive and small predictor of anger in this model. Entering the frequency of perfectionistic cognitions resulted in an additional 5% of variance being explained in anger. This increase was statistically significant.

The last criterion variable in the hierarchical regression analyses was happiness. Time was not a significant predictor of happiness. SOP and SPP accounted for 2% of variance. However, this was not a statistically significant increase or model. Entering the frequency of perfectionistic cognitions also did account for any significant additional variance.

Discussion

The aims of this investigation were: (i) to examine the relationships between SOP and SPP, as manifested in sport, and pre-competition emotions in youth footballers and (ii) to examine whether perfectionistic cognitions predict pre-competition emotions after controlling for SOP and SPP. It was hypothesised that SPP would positively predict negative emotions (anxiety, dejection, and anger), and SOP would positively predict both positive (happiness and excitement) and negative emotions (anxiety, anger, and dejection). It was also

hypothesised that frequent perfectionistic cognitions would predict positive and negative emotions after controlling for SOP and SPP.

Multidimensional perfectionism and pre-competition emotions

Consistent with the hypotheses, SPP was a unique positive predictor of anger (although in the context of a non-significant overall model). The predictive ability of SPP for pre-competition anger is aligned with research in sport that has reported similar findings for general anger (i.e., trait anger; Dunn et al., 2006) and anger following mistakes (i.e., anger/dejection following mistakes; Lizmore et al., 2016). However, unlike previous research, our findings illustrate for the first time that a relationship between perfectionism and anger exists in context of anticipatory pre-competition experiences for athletes. In doing so, a clearer picture is emerging of the likely emotional experiences associated with higher SPP at key points in the performance process. Given the complex role of anger in regard to performance, it is difficult to assert that this is necessarily debilitating. However, it highlights the possibility that the ability to regulate anger effectively may be particularly important for athletes reporting higher SPP (see Hill & Davis, 2014). In addition, in regard to wellbeing, there is likely to be little benefit in an emotional experience that is characterised by higher levels of anger generally, anger when preparing for competition, and anger during competition.

In partial support of our hypotheses, SOP was a unique predictor of excitement. There is a small amount of evidence of similar relationships in sport for enjoyment of competition generally (e.g., Carter & Weissbrod, 2011). To our knowledge, however, this is the first time the relationship between SOP and a specific positive pre-competition emotion has been found in sport. In regard to explaining the relationship between SOP and excitement, it is noteworthy that SOP includes a mix of approach and avoidance goals (Kaye, Conroy, &

Fifer, 2008). Approach goals are typically associated the perceptions of competence and positive emotions (Huang, 2011). Therefore, what we have observed here may be reflective of the presence of approach goals in the motivational underpinning of SOP. The experience of positive emotions did not extend to happiness, however, it may be that this pattern of findings is due to differences in the two emotions in regard to intensity (excitement is typically a high intensity emotion whereas happiness is typically a low intensity emotion) and/or core relational themes (excitement typically reflects the anticipation of goal achievement whereas happiness typically focuses on making reasonable progress toward achieving a goal) (Jones et al., 2005; Lazarus, 2000).

SOP did not uniquely predict any negative pre-competition emotions (anxiety, anger, and dejection). In regard to anxiety, some previous studies examining dimensions of perfectionism similar to SOP and pre-competition anxiety have also found non-significant relationships, though often findings depended on if other dimensions of perfectionism are controlled for (Frost & Henderson, 1991; Hall et al., 1998; Stoeber Otto, Pescheck, Becker, & Stoll, 2007). Here, SOP had a significant positive relationship with anxiety at a bivariate level and this disappeared once SPP and perfectionistic cognitions were taken into account. In considering these findings, the relationship between SOP and anxiety may be wholly explained by perfectionistic cognitions. That is, SOP may contribute to higher anxiety but this is because SOP prompts more frequent perfectionistic cognitions. In regard to pre-competition dejection and anger, levels of SOP appear to provide little information regarding these emotions. However, it remains possible that SOP is important in terms of anger reactivity to mistakes in sport as this has been found by others examining dimensions of perfectionism similar to SOP (e.g., Dunn et al., 2006; Lizmore et al., 2016; Vallance, Dunn, & Dunn, 2006).

Perfectionistic cognitions and pre-competition emotions

In partial support of the hypotheses, frequent perfectionistic cognitions were found to be important when considering some but not all pre-competition emotions. Corroborating the results of previous studies of perfectionistic cognitions and emotions (e.g., Flett et al., 1998), we found that perfectionistic cognitions account for significant additional variance in negative emotions (anxiety, anger, and dejection) over and above the variance predicted by SOP and SPP. In regard to why this is the case, perfectionistic cognitions reflect a cognitive preoccupation with the attainment of perfection. The persistent engagement in thoughts regarding the need for perfect, and ongoing self-vigilance, draws intense attention to the discrepancy between the actual self and the desired perfect self (Flett et al., 2007). It is therefore unsurprising that these cognitions are related to negative emotions in athletes. With this in mind, our findings indicate that to better understand the pre-competition emotional experiences of athletes, practitioners need to consider not only whether athletes are higher or lower in SOP and SPP but also if they are experiencing more or less frequent perfectionistic cognitions as they approach competition.

Perfectionistic cognitions did not predict any positive emotions above SOP and SPP (happiness and excitement). Therefore perfectionistic cognitions appear comparatively unimportant in regard to the experience of positive emotions. While the role of perfectionistic cognitions in the experience of negative emotions is more intuitive, it is less clear why, given the prediction of negative emotions here, perfectionistic cognitions were not also negatively related to positive emotions beyond SOP and SPP (or related to negative emotions at all in the bivariate correlations). We consider this finding to be indicative of the notion of co-activation whereby the experience of higher levels of negative emotions do not necessarily coincide with the experience of lower levels of positive emotions, and that positive and negative emotions can be experienced concurrently (e.g., excitement and anxiety) (see Ekkekakis, 2013). We also consider the finding to indicate that perfectionistic cognitions are more

relevant to the core relational themes that underpin negative emotions, such as perceptions of harm and threat, but are less relevant to the core relational themes that underpin positive emotions, such as perceptions of benefit or goal progress.

Given these mixed findings, one final important issue to acknowledge is the current debate regarding perfectionistic cognitions. In the current study, we adopted Flett et al.'s (1998) approach with the intention to capture perfectionistic rumination (i.e., negative, repetitive, and persistent thoughts that pertain to the perfect self). Nevertheless, Stoeber et al. (2014) recently argued that perfectionistic cognitions are multidimensional, and include different elements some of which are more positive (e.g., MPCI; Kobori & Tanno, 2004). These two models offer alternative approaches to studying perfectionistic cognitions that may be useful in regard to understanding the different ways perfectionism manifests cognitively. Researchers may therefore wish to revisit the relationships examined in the current study using the approach advocated by Stoeber et al. (2014) and compare the two approaches in regard to predicting pre-competition emotions in athletes. This includes comparing ruminative perfectionistic cognitions, as measured here, and cognitions that capture a broader array of content such as striving, concerns, and demands (Stoeber et al., 2014).

Limitations and other future directions

The present findings must be considered in the context of the study's limitations. Firstly, the study utilized a cross-sectional design. Longitudinal studies are needed to understand the relationships over time and determine whether SOP, SPP, and perfectionistic cognitions are associated with changes in pre-competition emotions over time. Secondly, the SEQ captures general pre-competition emotions. Some of the emotions, such as anxiety and anger include more complex dimensions not measured here (e.g., cognitive and somatic anxiety; Martens et al., 1990 and verbal and physical anger; Spielberger, 1999). Future

studies should consider examining the relationship between SOP and SPP, perfectionistic cognitions and these different dimensions of state anxiety and anger. Thirdly, as we amended both the CAPS and PCI in order to create more psychometrically sound versions of the measures, some caution may be required in terms of how well these newer versions compare to other versions used elsewhere. In two cases, SPP and PCI, the very large correlations between the new and the original scales suggest that there are unlikely to be any difference in findings. However, in the case of SOP, the correlation was lower so this might not be the case. Fourthly, our study focused on a sample comprised exclusively of youth footballers recruited from football academies and national teams. Future studies should therefore examine whether the findings generalize to other populations (e.g., adults or different sports) and contexts (e.g., competitions that are objectively very important or objectively unimportant). Lastly, contextual information collected from participants was limited (e.g., they were not asked whether they anticipated success or failure). Such contextual factors may be important when considering the experience of pre-competition emotions. This information would make a valuable addition to future work of this kind.

Conclusion

This study provides the first study in sport to examine the relationships between SOP, SPP, perfectionistic cognitions, and pre-competition emotions. This study revealed that SPP was a unique significant positive predictor of anger, while SOP was a unique significant positive predictor of excitement. Moreover, perfectionistic cognitions predicted negative pre-competition emotions beyond SOP and SPP (anxiety, anger and dejection) but not positive emotions (happiness and excitement). Whether an athlete expects perfection of him or herself, believes others expect it of them, or experiences thoughts centred on perfection, perfectionism appears important in regard to pre-competition emotions. Those working with

athletes will need to take all these aspects of perfectionism into account to help footballers manage pre-competition emotions.

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Table 1

Descriptive statistics, bivariate correlations, and internal reliability for self-oriented and socially prescribed perfectionism, perfectionistic cognitions, and pre-competition emotions

Variable	*M*	*SD*	α	1	2	3	4	5	6	7	8
1. Self-oriented perfectionism	4.23	0.59	.72								
2. Socially prescribed perfectionism	2.26	0.83	.88	.05							
3. Perfectionistic cognitions	1.46	0.85	.87	.34**	.38**						
4. Anxiety	1.73	1.24	.87	.15*	.04	.32**					
5. Dejection	0.44	0.09	.87	.02	.16*	.24**	.35**				
6. Excitement	2.60	0.98	.85	.22**	-.02	.13	.21**	-.16*			
7. Anger	0.50	0.81	.88	.04	.21**	.29**	.25**	.73**	-.12		
8. Happiness	2.32	1.07	.89	.12	-.01	.12	.03	-.24**	.78**	-.19**	
9. Time	24.45	25.88	-	-.07	.06	.02	-.07	.11	-.16*	.09	-.06

Note. * p <.05, ** p <.01, two-tailed.

Table 2

Hierarchical regression analyses with self-oriented and socially prescribed perfectionism and perfectionistic cognitions predicting pre-competition emotions

Criterion Variable	Predictor Variables	*F*	df	R^2	$R^{2\ change}$	β	t
Anxiety							
Step 1		0.94	1, 178	.01			
	Time					-.07	-0.97
Step 2		0.76	3, 176	.01	.01		
	Time					-.07	-0.88
	SOP					.09	1.16
	SPP					-.01	-0.09
Step 3		5.88***	4, 175	.12***	.11***		
	Time					-.07	-1.03
	SOP					-.01	-0.18
	SPP					-.13	-1.71
	PCI-S					.36***	4.58
Dejection							
Step 1		2.15	1,178	.01			
	Time					.11	1.47
Step 2		1.84	3, 176	.03	.02		
	Time					.10	1.39
	SOP					.03	0.42
	SPP					.13*	1.76
Step 3		3.16*	4, 175	.07*	.04*		
	Time					.10	1.35
	SOP					.03	-0.37
	SPP					.06	0.74
	PCI-S					.22**	2.64
Excitement							
Step 1		4.83*	1, 178	.03*			
	Time					-.16*	-2.20
Step 2		4.28**	3, 176	.07*	.04*		
	Time					-.15*	-2.01
	SOP					.20**	2.78
	SPP					-.03	-0.47
Step 3		3.61**	4, 175	.08	.01		
	Time					-.15*	-2.04
	SOP					.18*	2.30
	SPP					-.07	-0.88
	PCI-S					.10	1.26
Anger							
Step 1		1.48	1, 178	.01			
	Time					.09	1.22

Step 2		2.48*	3, 176	.04*	.03		
	Time					.08	1.12
	SOP					.04	0.58
	SPP					.17*	2.33
Step 3		4.18**	4, 175	.09**	.05**		
	Time					.08	1.08
	SOP					-.02	-0.31
	SPP					.09	1.16
	PCI-S					.24**	2.99
Happiness							
Step 1		0.61	1, 178	.00			
	Time					-.06	-0.78
Step 2		1.42	3, 176	.02	.02		
	Time					-.05	-0.70
	SOP					.14	1.80
	SPP					.04	0.53
Step 3		1.31	4, 175	.03	.01		
	Time					-.05	-0.72
	SOP					.11	1.43
	SPP					.01	0.15
	PCI-S					.08	0.99

Note. *p <.05, **p <.01, *** p <.001, two-tailed.