The 2 × 2 Model of Perfectionism and Negative Experiences in Youth Sport

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Abstract

Objectives: Research has found that the four subtypes of perfectionism from the 2 × 2 model of perfectionism (i.e., Non-perfectionism, Pure PSP, Pure ECP, and Mixed perfectionism) are associated with different youth sport experiences. Extending this research, the current study examined the 2 × 2 model in regard to undesirable outcomes indicative of negative experiences in youth sport: negative (and positive) affect, anxiety, antisocial (and prosocial) behavior, and intentions to dropout of sport.

Design: A cross-sectional design was employed.

Method: Two hundred and twenty-two youth sports participants (65 males, 157 females, *M* age = 13.51 years, *SD* = 1.53 years, range = 11 – 18 years) were recruited from a variety of school- and community-based sports and completed a multi-section questionnaire.

Results: Regression analyses revealed that, for the most part, Pure ECP was associated with the most negative experiences (higher negative affect, anxiety, and intentions to dropout and lower positive affect) and Pure PSP was, typically, associated with the least negative experiences (lower negative affect, anxiety, antisocial behavior, and intentions to dropout and higher positive affect) in youth sport. One notable exception was antisocial behavior towards teammates and competitors for which Mixed perfectionism was most problematic.

Conclusion: The findings suggest that the four subtypes of perfectionism can be distinguished based on their association with both negative and positive experiences in youth sport.

Keywords: personality; affect; anxiety; moral behavior; dropout; adolescents

The benefits of sport participation during childhood and adolescence are well documented. In addition to promoting better physical health, sport experiences in childhood and adolescence can foster psychological well-being (e.g., positive affect, higher self-worth, and constructive social behaviors; Crane & Temple, 2015). However, for some young people, sport experiences do not contribute to desirable outcomes. Instead, their experiences are more negative and include negative affect, anxiety, and the adoption of undesirable social behaviors (Fraser-Thomas, Côté, & Deakin, 2008). These negative experiences are also partly accountable for dropout from youth sports and deny young people the benefits of lifelong participation in sport (Crane & Temple, 2015). As such, examining the predictors of youth sport experiences, and negative experiences, in particular, is important so to maximize the benefits of youth sport participation (Roberts, 2012).

Multidimensional Perfectionism and the 2 × 2 Model of Perfectionism

Perfectionism has emerged in research as important in regard to the thoughts, feelings, and actions of youth sport participants. Broadly, perfectionism is a multidimensional personality characteristic that involves a combination of striving for exceedingly high standards of performance and a preoccupation with harsh critical evaluations (Frost, Marten, Lahart, & Rosenblate, 1990). In accord, two broad dimensions of perfectionism can be differentiated; personal standards perfectionism (PSP) (also referred to as perfectionistic strivings or PS) and evaluative concerns perfectionism (ECP) (also referred to as perfectionistic concerns or PC). PSP involves "a self-oriented tendency to set highly demanding standards and to strive for their attainment" (Gaudreau & Antl, 2008, p. 357). Conversely, ECP "entails a socially prescribed tendency to evaluate oneself harshly, to doubt one's capacity to bring about desired outcomes, and to perceive that others require perfection from oneself" (Gaudreau & Antl, 2008, p. 357).

Most research examining perfectionism in sport has focused on the separate or

independent effects of PSP and ECP (see Hill, Mallinson-Howard, & Jowett, 2018). There has however been a recent shift towards focusing on the interactive effects of the two broad dimensions of perfectionism in the form of a 2 × 2 model. The 2 × 2 model of perfectionism comprises four subtypes of perfectionism (Gaudreau & Thompson, 2010). The first subtype is "Non-perfectionism" (low PSP/low ECP) and is characterized by little personal orientation toward striving for perfectionistic standards or concern with pressures from the social environment to pursue perfectionistic standards. The second subtype is "Pure PSP" (high PSP/low ECP) and is characterized by having personally imposed perfectionistic standards. The third subtype is "Pure ECP" (low PSP/high ECP) and is characterized by pursuing perfectionistic standards derived from social-environmental pressures. The fourth subtype is "Mixed perfectionism" (high PSP/high ECP) and is characterized by perceived pressure from significant others to strive for perfectionistic standards and personal adherence to such standards.

The four subtypes of perfectionism are proposed to be associated with different outcomes. This idea is captured in four hypotheses that are based on underlying differences between the subtypes regarding internalization, motivation regulation, and person-environment congruence (see Gaudreau, 2016). Hypothesis 1 offers three competing assertions that Pure PSP will either be associated with better (H1a), poorer (H1b), or no different (H1c) outcomes compared to Non-perfectionism. Hypothesis 2 (H2) asserts that Non-perfectionism will be associated with better outcomes compared to Pure ECP. Hypothesis 3 (H3) asserts that Mixed perfectionism will be associated with better outcomes compared to Pure ECP. Finally, hypothesis 4 (H4) asserts that Pure PSP will be associated with better outcomes compared to Mixed perfectionism.

In a recent review, Hill and Madigan (2017) summarized the findings of nine studies that have tested the 2 × 2 model of perfectionism in sport and dance. The measured outcomes

in the review included indicators of positive sport experiences (e.g., enjoyment, physical self-worth, and adaptive friendship qualities) and indicators of negative sport experiences (e.g., negative affect, social physique anxiety, and peer conflict). Hill and Madigan (2017) found that H1a was supported more often than H1b (81% of the time), H2 and H4 were supported the most often (91 % of the time), and H3 was supported least often (77% of the time). Based on this review, early indication is that research generally supports the tenets of the 2 × 2 model and that it may be useful in explaining differences in the experiences of athletes. As such, it is adopted here when seeking to examine the negative experiences of youth sport participants.

Indicators of Negative (and Positive) Experiences in Youth Sport

The value of youth sport and the experiences of young athletes can be studied using various theoretical approaches. This includes adopting theoretical approaches that emphasize competence (e.g., achievement goal theory; Nicholls, 1984), psychological need fulfillment (self-determination theory; Ryan & Deci, 2000), and emotional experiences (sport commitment model; Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993). While these approaches differ in their assumptions and the psychological processes that are thought to precede outcomes of sport participation, there is considerable overlap in the way youth sport experiences are construed. In some cases, internalized values, and in most cases emotional experiences, well-/ill-being, and socially desirable behaviors are considered the main indicators of positive or negative experiences. In addition, within all these approaches, the prominence of indicators of positive experiences, and absence of indicators of negative experiences, signal if sport is a vehicle for positive youth development.

At the broadest level, the emotional experiences of youth sport participants are captured through negative and positive affect. Negative affect reflects general unpleasant feelings whereas positive affect reflects general pleasant feelings (Diener et al., 2010). As

these two broad dimensions are indicative of overall affective balance, both are considered important for understanding an individual's emotional experience (Diener et al., 2010). In construing youth sport experiences, negative experiences are reflected in the presence of negative affect and the absence of positive affect and positive experiences are reflected in the opposite (e.g., Adie, Duda, & Ntoumanis, 2010). In support of this approach, negative affect is associated with undesirable outcomes in sport such as athlete burnout (e.g., Goodger, Gorely, Lavallee, & Harwood, 2007) and positive affect is associated with continued sport involvement (see Crocker, Hoar, McDonough, Kowalski, & Niefer, 2004).

Another popular outcome used to capture more specific emotional experiences in youth sport is anxiety. Sport anxiety is common amongst youth sport participants and manifests in situations where the adequacy of a young person's performance is evaluated (Smith, Smoll, Cumming, & Grossbard, 2006). It has both cognitive and somatic components, which is evident in dimensions of concentration disruption and worry as well as perceptions of physiological arousal (Smith et al., 2006). Consistent with the notion that, when conceptualized in this manner, anxiety is largely undesirable, the three dimensions of anxiety have been associated with lower enjoyment of sport, avoidance of sport, and withdrawal from sport (see Crocker et al., 2004). Most concerningly, worry has been implicated in impairment of the health of young people in sport (e.g., disordered eating, injury, and sleep disturbance; Crocker et al., 2004).

Beyond affect and emotions, moral behavior has become of increasing interest where the experiences of youth sport participants are concerned (e.g., Bruner, Boardley, & Côté, 2014). This is partly explained by the notion that youth sport can be considered a means to socialize desirable values and behaviors among its participants. Two forms of moral behavior have most often been examined; antisocial behavior and prosocial behavior (Bruner et al., 2014). Antisocial behavior is intended to harm or disadvantage others in sport (e.g.,

teammates or opponents) whereas prosocial behavior is intended to help or benefit others (Kavussanu, 2012). Whether focused on opponents or teammates, antisocial and prosocial behaviors are said to be best examined concurrently if a more complete understanding of moral behavior is to be gained (Kavussanu, Seal, & Phillips, 2006). With the potential to cause or alleviate others' distress or pain, moral behavior is a key factor in ascertaining whether young people's experience of sport is a positive and enriching one or not (Kavussanu, 2012).

A final important outcome relevant to more negative experiences in youth sport is dropout (Fraser-Thomas et al., 2008). In youth sport research, dropout is either captured through actual rates of dropout or intentions to dropout, with intentions being considered a close predictor of actual dropout behavior (Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002). There are various reasons why intentions to dropout of youth sport are important. For example, if not participating in sport, young people are more likely to be engaging in sedentary behavior (see Herman, Sabiston, Mathieu, Tremblay, & Paradis, 2014) and some forms of sedentary behavior (e.g., television watching) have been linked with obesity and chronic disease (Tremblay et al., 2011). In addition, while sport can be both a negative and positive experience, it is clear from research that when it is a positive experience, sport affords young people a sense of confidence, satisfaction, and belonging with others (see Crane & Temple, 2015). Thus, while sport offers a potential avenue to promote physical health and psychosocial development, this is obviously only the case while young people are still actively participating.

The 2 × 2 Model of Perfectionism: Affect, Anxiety, Moral Behavior, and Dropout

Of the nine studies to have examined the 2 × 2 model in sport and dance to date, three have examined negative and positive affect (Crocker, Gaudreau, Mosewich, & Kljajic, 2014; Cumming & Duda, 2012; Gaudreau & Verner-Filion, 2012). Across these three studies, the

findings for negative affect are consistent with Non-perfectionism being associated with better outcomes than Pure ECP (H2), Pure PSP being associated with better outcomes than Mixed perfectionism (H4), and all of the other hypotheses unsupported (H1a/H1b and H3). The findings for positive affect are more inconsistent with H1a and H3 supported on two occasions but unsupported on one occasion, H2 supported on one occasion but unsupported on two occasions, and H4 unsupported on all three occasions. It is unclear why there are differences between studies in regard to positive affect but given that H4 has previously received the most consistent empirical support in other studies, the lack of support for this hypothesis is noteworthy. The current study provides an opportunity to reexamine the 2 × 2 model in regard to affect and, in particular, whether Pure PSP is associated with higher positive affect compared to Mixed perfectionism (H4) or not in youth sport participants.

The 2 × 2 model of perfectionism has yet to be examined in relation to multidimensional sport anxiety. Instead, research has mainly considered the independent effects of PSP and ECP (Carr & Wyon, 2003; Carter & Weissbrod, 2011; Thienot, Jackson, Dimmock, Grove, Bernier, & Fournier, 2014). For concentration disruption and somatic anxiety, PSP has shown no significant associations but ECP has shown consistent positive associations. For worry, both PSP and ECP have shown positive associations. This creates an interesting set of findings in context of the 2 × 2 model in that the model may not function as expected for dimensions of anxiety (viz. H2 and H4 supported and H1 and H3 unsupported; see Gaudreau, 2012). Theoretically, however, there is little reason to suspect the model would not function as expected. Pure ECP and Mixed perfectionism involve pressures and concerns that are likely to disrupt focus, and induce worry and physiological arousal; whereas Pure PSP typically does not (Gaudreau & Verner-Filion, 2012). Thus, Pure ECP should be associated with higher levels, Pure PSP lower levels, and Mixed perfectionism somewhere in-between. The current study, then, provides the first opportunity to examine the 2 × 2 model in

regard to dimensions of anxiety in youth sport participants.

Like with anxiety, research has yet to consider the 2 × 2 model of perfectionism in relation to moral behavior or intentions to dropout of youth sport. Indeed, research has yet to examine these variables in concert in sport at all. Despite an absence of research, there are theoretical reasons to suspect that subtypes of perfectionism from the 2 × 2 model would be related to moral behavior. Flett and Hewitt (2016) have recently described the notion of "dark striving" whereby perfectionism may encourage socially unacceptable behaviors in order to be more successful. ECP, in particular, is thought to be imbued with potentially harmful features that may encourage athletes to turn to antisocial behaviors to gain a competitive edge (e.g., narcissism; see Smith et al., 2016). However, PSP may also involve hyper-competitiveness and encourage underhand tactics to gratify a need to succeed (Flett & Hewitt, 2016). If this is the case, it serves as a further intriguing point of departure from the tenets of the 2 × 2 model in that one would expect Mixed perfectionism (high PSP/high ECP) to be associated with more problematic moral behavior than Pure ECP (low PSP/high ECP) (i.e., H3 would be contradicted).

On the relationship between perfectionism and dropout, it has been suggested by others that perfectionism may be a key psychosocial determinant of dropout (Fraser-Thomas et al., 2008). Previous research has supported this possibility in that subtypes of perfectionism from the 2 × 2 model correspond with quite different views of youth sport involvement and consequences aligned with dropout. For example, Mallinson, Hill, Hall, and Gotwals (2014) found that for youth sports participants, Pure PSP was associated with more enjoyment, more confidence, and better quality friendships with their sport peers. By contrast, Pure ECP was associated with less enjoyment, less confidence, and more challenging friendships with their sport peers. Mixed perfectionism was associated with experiences that were largely poorer than Pure PSP but better than Pure ECP. If we consider that ongoing participation in youth

sport is often contingent on experiencing enjoyment, self-worth, and being social (Scanlan et al., 1993), it would be unsurprising to find that these opposing experiences provide the basis for different likelihoods for dropout in a manner consistent with the four hypotheses of the 2 × 2 model.

The Present Study

The purpose of the current study was to test the 2 × 2 model in youth sport with a particular focus on undesirable outcomes indicative of negative experiences in youth sport. In line with the 2 × 2 model (Gaudreau, 2016), Pure PSP was hypothesized to be associated with a less negative sport experience (lower negative affect, anxiety, antisocial behavior, and intentions to dropout and higher positive affect and prosocial behavior) compared to Non-perfectionism (H1a). Pure ECP was hypothesized to be associated with a more negative sport experience (higher negative affect, anxiety, antisocial behavior, and intentions to dropout and lower positive affect and prosocial behavior) compared to Non-perfectionism (H2). Mixed perfectionism was hypothesized to be associated with a less negative sport experience compared to Pure ECP (H3) and a more negative sport experience compared to Pure PSP (H4).

Method

Participants

Following institutional ethical approval, 222 youth sports participants (65 males, 157 females, *M* age = 13.51 years, *SD* = 1.53 years, range = 11 – 18 years) were recruited from a variety of school- and community-based sports. Participants were involved in their sports at recreational (*n* = 38), club (*n* = 105), district/county (*n* = 62), regional (*n* = 11) and national level (*n* = 4). There were two non-respondents in terms of sport participation level. On average, the sample had participated in their sport for 3.33 years (*SD* = 2.42) and trained and played for 5.09 hours per week (*SD* = 5.08). The sample reported on a nine-point Likert scale

that their participation in sport was very important (M = 7.27, SD = 1.64) in comparison to the other activities in their lives (1 = *not at all important* to 9 = *extremely important*).

Procedure

Contact was initially made with gatekeepers (e.g., director of sport or head coach) of school- and community-based sport clubs in the North of England. Through this contact, details of the study and potential involvement were discussed. For those clubs willing to be involved, an information sheet was then distributed to sport participants and their parents/guardians. Parental/guardian consent and child assent were sought for those sport participants wishing to take part. Participants were invited to complete a one-off multi-section questionnaire at a time convenient for the club (e.g., before or after a training session).

Instruments

Multidimensional perfectionism. PSP and ECP were measured at the domain level using the Sport-MPS-2 (Gotwals & Dunn, 2009). The measure has six subscales. Four of the subscales are intrapersonal and include personal standards (7-items, e.g., 'I have extremely high goals for myself in my sport'), concern over mistakes (8- items, e.g., 'If I fail in competition, I feel like a failure in person'), doubts about actions (6-items, e.g., 'Prior to competition, I rarely feel satisfied with my training'), and a need for organization (6-items, e.g., 'I have and follow a pre-competitive routine'). Two of the subscales are interpersonal and include perceived coach pressure (6-items, e.g., 'My coach sets very high standards for me in competition') and perceived parental pressure (9-items, e.g., 'My parents expect excellence from me in my sport'). The stem of the instrument asks participants to indicate how much they agree or disagree with a number of statements that identify how athletes view certain aspects of their competitive experiences in sport. Items are measured on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Gotwals, Dunn, Causgrove Dunn,

and Gamache (2010) have produced supportive evidence regarding the validity and reliability of the Sport-MPS-2. Consistent with the recommendations of Stoeber and Madigan (2016), personal standards was used as an indicator of PSP and concern over mistakes as an indicator of ECP.

Indicators of Experiences in Youth Sport

Negative and positive affect. Broad pleasant and unpleasant feelings toward sport participation were assessed using the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010). The SPANE includes six items that reflect general positive feelings (e.g., good, happy, joyful) and six items that reflect general negative feelings (e.g., bad, sad, angry). The stem of the scale was amended to help participants focus their responses on sport (i.e., 'Please think about what you have been doing and experiencing in your sport during the past four weeks. Then report how much you experienced each of the following feelings'). Responses are measured on a 5-point Likert scale (1 = *very rarely or never* to 5 = *very often or always*). Diener et al. (2010) have produced supportive evidence regarding the validity and reliability of the SPANE.

Multidimensional sport anxiety. The Sport Anxiety Scale-2 (SAS-2; Smith et al., 2006) was used to measure anxiety in sport. It is designed for use with children and contains three five-item subscales that relate to concentration disruption (e.g., "it is hard for me to focus on what I am supposed to do"), worry (e.g., "I worry that I will not play well"), and somatic anxiety (e.g., "my body feels tense"). Items are preceded by the phrase 'Before or while I compete in sports'. Responses are measured on a 4-point Likert scale (1 = *not at all* to 4 = *very much*). Smith et al. (2006) have produced supportive evidence regarding the validity and reliability of the SAS-2.

Antisocial and prosocial behavior. Moral behavior was assessed using the Prosocial and Antisocial Behavior in Sport Scale (PABSS; Kavussanu & Boardley, 2009). The scale

contains 20 items and four subscales. These capture prosocial behavior toward teammates (4-items; e.g. "encouraged a teammate"), prosocial behavior toward opponents (3-items, e.g., "helped an injured opponent"), antisocial behavior toward teammates (5-items, e.g., "criticized a teammate"), and antisocial behavior toward opponents (8-items, "tried to injure an opponent"). Responses are measured on a 5-point Likert scale (1 = *never* to 5 = *very often*). Kavussanu and Boardley (2009) have provided evidence for subscale reliability.

Intentions to dropout. Intentions to dropout were measured using four items similar to those employed in youth soccer (Quested et al., 2013). Two items were designed to elicit participants' intentions to dropout of their sport next season (e.g., "I am thinking of quitting my sport"). Two items were designed to elicit participants' intentions to continue with their sport next season (e.g., "I plan to play my sport next season"). Items are measured on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree).* An overall intention to dropout score is obtained by reverse coding the intentions to continue items and combining with the intentions to dropout items.

Results

Preliminary Analyses

A missing value analysis indicated that there were 148 complete cases and 74 incomplete cases. The Little's MCAR test (Little, 1988) was non-significant: $\chi^2_{(198)} = 209.01$, $p = .28$, indicating that the data were missing completely at random. Assessment of univariate normality revealed 11 univariate outliers (standardized z-scores larger than 3.29, $p < .001$, two-tailed).[1] There were two multivariate outliers, Mahalanobis distance: $\chi^2_{(12)} = 32.91$, $p < .001$. Thus, full information maximum likelihood with robust estimators (MLR) was used in

[1] The univariate outliers comprised individuals scoring at the lowest extremity of the Likert scale for positive affect ($n = 1$) and prosocial behaviour toward teammates ($n = 2$) and the highest extremity of the Likert scale for concentration disruption ($n = 1$), antisocial behaviour toward teammates ($n = 3$), antisocial behaviour toward opponents ($n = 1$), and intentions to dropout ($n = 3$).

MPlus version 8.1 to handle any missing data and deviations in normality (Aguinis, Gottfredson, & Joo, 2013; Enders, 2010; Muthén and Muthén, 1998-2018). Internal reliability was sufficient for all subscales (see Table 1).

Descriptive Statistics and Bivariate Correlation Coefficients

Descriptive statistics for all predictor and criterion variables are displayed in Table 1. Bivariate correlation coefficients demonstrated that PSP had small significant positive correlations with worry and somatic anxiety. It also had medium positive correlations with negative affect, antisocial behavior toward teammates, and antisocial behavior toward opponents. PSP was not significantly associated with positive affect, concentration disruption, prosocial behavior toward teammates, prosocial behavior toward opponents, and intentions to dropout. ECP had small significant positive correlations with concentration disruption, worry, and somatic anxiety. It had medium positive correlations with antisocial behavior toward teammates and antisocial behavior toward opponents. It also had a large positive correlation with negative affect and a small negative correlation with positive affect. ECP was not significantly associated with prosocial behavior toward teammates, prosocial behavior toward opponents, and intentions to dropout.

Test of the Hypotheses of the 2 × 2 Model of Perfectionism

Consistent with the recommendations of Gaudreau and colleagues (Gaudreau, 2012; Gaudreau & Thompson, 2010; Kljajic, Gaudreau, & Franche, 2017), a series of regression analyses were conducted for each of the criterion variables using MPlus version 8.1 (Muthén and Muthén, 1998-2018). In the first regression model, PSP and ECP were centered and entered as the predictor variables. In the second regression model, the interactive term (i.e., the product of centered PSP and ECP) was also added. A significant interactive term signaled a significant increase in additional variance explained above the main effects (Hayes 2013). To decompose a significant interaction effect, simple slopes and predicted values (see Figure

1) were created based on equations outlined in Aiken and West (1991) and Cohen, Cohen, West, and Aiken (2003). The first simple slope of PSP at low ECP (-1SD) was used to compare whether Pure PSP was associated with a less negative sport experience compared to Non-perfectionism (H1a). The second simple slope of PSP at high ECP (+1SD) was used to compare whether Mixed perfectionism was associated with a less negative sport experience compared to Pure ECP (H3). The third simple slope of ECP at low PSP (-1SD) was used to compare whether Non-perfectionism was associated with a less negative sport experience compared to Pure ECP (H2). The fourth simple slope of ECP at high PSP (+1SD) was used to compare whether Pure PSP was associated with a less negative sport experience compared to Mixed perfectionism (H4). Where a non-significant interaction effect was identified, uncentered PSP and ECP were entered in a third regression. The heuristic provided by Gaudreau (2012) was used to interpret main effects and predicted values in terms of the model's hypotheses (see Figure 1). Standardised effect sizes (Cohen's *d*) were also calculated for the four combinations of perfectionism subtypes and are displayed in context of the hypotheses of the 2 × 2 model in Table 2.

Negative affect. In the first regression model, centered PSP and ECP accounted for 28% of the variance in negative feelings toward sport participation: $F(2,217) = 41.57$, $p < .001$. PSP was a non-significant predictor: $\beta = -.05$, $t = -0.56$, $p = .58$. ECP was a significant positive predictor: $\beta = .56$, $t = 6.44$, $p < .001$. In the second regression model, the interactive term between centered PSP and ECP was a significant predictor: $\Delta R^2 = .01$, $\beta = .11$, $t = 2.14$, $p < .05$. Simple slopes analysis demonstrated that the first simple slope of PSP at low ECP (−1 SD) was non-significant ($\beta = -.11$, $t = -1.41$, $p = .16$). The second simple slope of PSP at high ECP (+1 SD) was non-significant ($\beta = .07$, $t = .80$, $p = .42$). The third simple slope of ECP at low PSP (-1 SD) was significant ($\beta = .33$, $t = 3.72$, $p < .001$). The fourth simple slope

of ECP at high PSP (+1 SD) was significant (β = .51, t = 6.19, p < .001). Based on the simple slopes analysis, support was provided for H2 and H4 but not H1 or H3.

Positive affect. In the first regression model, centered PSP and ECP accounted for 16% of the variance in positive feelings toward sport participation: F(2,217) = 19.90, p < .001. PSP was a significant positive predictor: β = .43, t = 5.85, p < .001. ECP was a significant negative predictor: β = -.55, t = -7.33, p < .001. In the second regression model, the interactive term between centered PSP and ECP was not a significant predictor: ΔR^2 = .00, β = -.04, t = -.56, p = .58. In the third regression model, findings for uncentered PSP and ECP replicated the first regression model. Based on Gaudreau's heuristic (2012), where PSP is a significant positive predictor and ECP a significant negative predictor, H1a, H2, H3, and H4 are supported.

Concentration disruption. In the first regression model, centered PSP and ECP accounted for 9% of the variance in concentration disruption: F(2,218) = 10.26, p < .001. PSP was a significant negative predictor: β = -.31, t = -3.80, p < .001. ECP was a significant positive predictor: β = .41, t = 5.06, p < .001. In the second model, the interactive term between centered PSP and ECP was a significant predictor: ΔR^2 = .03, β = -.19, t = -3.28, p < .01. Simple slopes analysis demonstrated that the first simple slope of PSP at low ECP (−1 SD) was non-significant (β = -.10, t = -1.95, p = .05). The second simple slope of PSP at high ECP (+1 SD) was significant (β = -.32, t = -4.92, p < .001). The third simple slope of ECP at low PSP (-1 SD) was significant (β = .38, t = 5.65, p < .001). The fourth simple slope of ECP at high PSP (+1 SD) was significant (β = .16, t = 2.67, p < .01). Based on the simple slopes analysis, support was provided for H2, H3, and H4 but not H1.

Worry. In the first regression model, centered PSP and ECP accounted for 7% of the variance in worry: F(2,218) = 8.07, p < .001. PSP was a non-significant predictor: β = .05, t = .53, p = .59. ECP was a significant positive predictor: β = .23, t = 2.07, p < .05. In the second

regression model, the interactive term between centered PSP and ECP was not a significant predictor: $\Delta R^2 = .01$, $\beta = -.11$, $t = -1.48$, $p = .14$. In the third regression model, findings for uncentered PSP and ECP replicated the first regression model. Based on Gaudreau's (2012) heuristic, where PSP is a non-significant predictor and only ECP is a significant positive predictor, H2 and H4 are supported but H1 and H3 are unsupported.

Somatic anxiety In the first regression model, centered PSP and ECP accounted for 5% of the variance in somatic anxiety: $F(2,218) = 5.86$, $p < .01$. PSP was a non-significant predictor: $\beta = -.02$, $t = -.19$, $p = .85$. ECP was a significant positive predictor: $\beta = .24$, $t = 2.46$, $p < .05$. In the second model, the interactive term between centered PSP and ECP was a significant predictor: $\Delta R^2 = .02$, $\beta = -.15$, $t = -2.78$, $p < .01$. Simple slopes analysis demonstrated that the first simple slope of PSP at low ECP (−1 SD) was non-significant ($\beta = .08$, $t = 1.02$, $p = .31$). The second simple slope of PSP at high ECP (+1 SD) was non-significant ($\beta = -.15$, $t = -1.72$, $p = .09$). The third simple slope of ECP at low PSP (-1 SD) was significant ($\beta = .31$, $t = 3.32$, $p < .01$). The fourth simple slope of ECP at high PSP (+1 SD) was non-significant ($\beta = .09$, $t = 1.10$, $p = .27$). Based on the simple slopes analysis, support was provided for H2 but not H1, H3, and H4.

Antisocial behavior toward teammates. In the first regression model, centered PSP and ECP accounted for 15% of the variance in antisocial behavior toward teammates: $F(2,216) = 19.06$, $p < .001$. PSP was a significant positive predictor: $\beta = .22$, $t = 2.34$, $p < .05$. ECP was a significant positive predictor: $\beta = .20$, $t = 2.03$, $p < .05$. In the second regression model, the interactive term between centered PSP and ECP was a significant predictor: $\Delta R^2 = .06$, $\beta = .25$, $t = 3.84$, $p < .001$. Simple slopes analysis demonstrated that the first simple slope of PSP at low ECP (−1 SD) was non-significant ($\beta = .02$, $t = .24$, $p = .81$). The second simple slope of PSP at high ECP (+1 SD) was significant ($\beta = .52$, $t = 3.68$, $p < .001$). The third simple slope of ECP at low PSP (-1 SD) was non-significant ($\beta = -.10$, $t = -.79$, $p = .43$). The

fourth simple slope of ECP at high PSP (+1 SD) was significant (β = .40, t = 3.16, p < .01). Based on the simple slopes analysis, H1 and H2 were unsupported, H3 was contradicted (i.e., the difference between the subtypes was in the opposite direction to predicted), and H4 was supported.

Antisocial behavior toward opponents. In the first regression model, centered PSP and ECP accounted for 22% of the variance in antisocial behavior toward opponents: F(2,216) = 29.76, p < .001. PSP was a significant positive predictor: β = .28, t = 3.13, p < .01. ECP was a significant positive predictor: β = .23, t = 2.47, p < .05. In the second regression model, the interactive term between centered PSP and ECP was a significant predictor: ΔR^2 = .06, β = .17, t = 2.28, p < .01. Simple slopes analysis demonstrated that the first simple slope of PSP at low ECP (−1 SD) was non-significant (β = .14, t = 1.43, p = .15). The second simple slope of PSP at high ECP (+1 SD) was significant (β = .49, t = 3.99, p < .001). The third simple slope of ECP at low PSP (-1 SD) was non-significant (β = .03, t = .35, p = .73). The fourth simple slope of ECP at high PSP (+1 SD) was significant (β = .38, t = 3.15, p < .01). Based on the simple slopes analysis, H1 and H2 were unsupported, H3 was contradicted, and H4 was supported.

Prosocial behavior toward teammates. In the first regression model, centered PSP and ECP accounted for a non-significant proportion of the variance in prosocial behavior toward teammates: R^2 = .02, F(2,216) = 2.54, p = .08. In the second regression model, the interactive term between centered PSP and ECP was not a significant predictor: ΔR^2 = .01, β = .12, t = 1.84, p = .07. These models were not further interpreted.

Prosocial behavior toward opponents. In the first regression model, centered PSP and ECP accounted for a non-significant proportion of the variance in prosocial behavior toward opponents: R^2 = .01, F(2,216) = .54, p = .58. In the second regression model, the

interactive term between centered PSP and ECP was not a significant predictor: $\Delta R^2 = .01$, $\beta = .11$, $t = 1.57$, $p = .12$. These models were not further interpreted.

Intentions to dropout In the first regression model, centered PSP and ECP accounted for 4% of the variance in intentions to dropout: $F(2,216) = 4.50$, $p < .05$. PSP was a significant negative predictor: $\beta = -.26$, $t = -3.25$, $p < .01$. ECP was a significant positive predictor: $\beta = .27$, $t = 2.60$, $p < .01$. In the second regression model, the interactive term between centered PSP and ECP was not a significant predictor: $\Delta R^2 = .00$, $\beta = -.02$, $t = -0.28$, $p = .78$. In the third regression model, findings for uncentered PSP and ECP replicated the first regression model. Based on Gaudreau's heuristic (2012), where PSP is a significant positive predictor and ECP a significant negative predictor, H1a, H2, H3, and H4 are supported.

Discussion

The current study tested the four hypotheses of the 2 × 2 model of perfectionism (H1a, H2, H3, and H4) using indicators of negative experiences in youth sport (affect, anxiety, moral behavior, and intentions to dropout). Table 2 provides a summary of the supported, unsupported, and contradicted hypotheses of the 2 × 2 model. Pure PSP was associated with lower intentions to dropout and higher positive affect compared to Non-perfectionism (H1a supported). Pure ECP was associated with higher negative affect, dimensions of anxiety, and intentions to dropout, and lower positive affect, compared to Non-perfectionism (H2 supported). Mixed perfectionism was associated with lower concentration disruption and intentions to dropout, and higher positive affect, compared to Pure ECP (H3 supported). Contrary to the hypotheses of the 2 × 2 model, Mixed perfectionism was associated with higher antisocial behavior compared to Pure ECP (H3 contradicted). Pure PSP was associated with lower negative affect, cognitive dimensions of anxiety, antisocial behavior, and intentions to dropout, and higher positive affect, compared to Mixed

perfectionism (H4 supported).

Negative and Positive Affect

Previous research that has examined negative affect in sport and dance has consistently shown Pure ECP is distinguishable from Non-perfectionism (H2), Pure PSP is distinguishable from Mixed perfectionism (H4), and other subtypes are not distinguishable from each other (Crocker et al., 2014; Cumming & Duda, 2012). Our findings replicate this research and indicate that negative affect in youth sport is mostly triggered by the presence of high ECP. In addition, our findings suggest that, relative to experiencing high ECP alone, high PSP may be insufficient to counterbalance the negative emotional effects of high ECP. This finding might be explained by suggestions that, unlike aiming for excellence, internalized perfectionistic goals put strain on personal resources and can induce negative emotionality (Gaudreau, 2019). In this regard, any benefits or buffering effects of high PSP may be limited to motivation related outcomes (e.g., working hard) and less evident in terms of how youth sport participants waylay any negative feelings arising from their sport participation.

As identified earlier, previous research examining positive affect has been more inconsistent and has so far found no evidence that Pure PSP is associated with higher levels of positive affect compared to Mixed perfectionism (i.e., H4 has consistently been unsupported; Crocker et al., 2014; Cumming & Duda, 2012; Gaudreau & Verner-Filion, 2012). Our findings are particularly noteworthy, then, in that they provide the first evidence of a difference between Pure PSP and Mixed perfectionism, with Pure PSP conferring at least some benefit in terms of positive affect in youth sport. This finding is more illuminating when considered in context of negative affect, which coexists with positive affect to characterize the overall quality of youth sport participants' emotional experiences (Adie et al., 2010). Here, youth sport participants who pursue internalized perfectionistic standards

without concern over harsh evaluations from significant others, had more desirable emotional experiences in which positive affect was prominent and negative affect was relatively absent. Given the inconsistent pattern of findings emerging across studies for positive affect, however, further examination of this relationship is warranted before confirming the comparative benefits of Pure PSP in this regard.

Multidimensional Sport Anxiety

The current study provided the first formal test of the 2 × 2 model in relation to dimensions of anxiety in sport. Based on theory, we anticipated the four hypotheses of the 2 × 2 model would be supported across all three dimensions of anxiety (Gaudreau & Verner-Filion, 2012). This was not the case. Only Non-perfectionism and Pure ECP (H2) were consistently distinguishable from each other and the other subtypes were not (Pure PSP vs. Non-perfectionism, Mixed perfectionism vs. Pure ECP, and Pure PSP vs. Mixed perfectionism). Like with negative affect, these findings suggest that the presence of high ECP is largely responsible for youth sport participants' internalized concerns about their ability in sport and associated responses. Further, compared to high ECP alone, high PSP again appears insufficient to minimize or buffer some of the negative emotionality associated with high ECP.

Where youth sport participants seemingly experienced less deleterious effects for anxiety was with respect to pursuing perfectionistic standards alone (Pure PSP). Across all three dimensions of anxiety, Pure PSP was no different to Non-perfectionism (H1 unsupported) and associated with less concentration disruption and worry than Mixed perfectionism (H4 supported). Based on these findings, it could be argued that levels of all dimensions of anxiety were low enough to indicate that Pure PSP is principally energizing for youth sport participants. However, it is noteworthy that making evaluations of one's sport ability based on perfectionistic standards that cannot be met will eventually exhaust personal

resources (Gaudreau, 2019). There is also evidence elsewhere that high personal standards predict increases in anxiety overtime for young people (Smith, Vidovic, Sherry, Stewart, & Saklofske, 2018). As such, any short-term benefits of pursuing perfectionistic goals (e.g., increased concentration) would need to be compared to consequences over the long-term, especially, in comparison to pursuing excellence or more realistic goals.

Moral Behavior

We also provided the first test of the 2 × 2 model for antisocial and prosocial behavior. In doing so, there are two key findings. First, we found evidence that the model has greater predictive ability for antisocial rather than prosocial behaviors. In other words, perfectionism appears more important to understanding the development of undesirable rather than desirable social behaviors in sport. Research outside of sport has indicated something similar with both PSP and ECP positively related to hostility and interpersonal conflict but unrelated to trust and agreeableness (e.g., Sherry, Mackinnon, & Gautreau, 2016; Stoeber, 2014; Stoeber, Noland, Mawenu, Henderson, & Kent, 2017). Similarly, research in sport has indicated that being preoccupied with personal perfection may not interfere with the positive aspects of peer relations (e.g., Ommundsen, Roberts, Lemyre, & Miller, 2005). However, in sport, research has only begun to examine how perfectionism influences interpersonal relationships and so more is required, particularly with respect to the mechanisms responsible for any problematic social behaviors.

Second, in a starker fashion, the role of PSP was more prominent than ECP in predicting greater antisocial behavior. Specifically, high PSP contributed to more antisocial behavior towards teammates and opponents when accompanied by high ECP (contradicting H3). This finding provides the first evidence in sport of dark striving, whereby perfectionism contributes to more problematic and socially unacceptable behaviors in aid of being successful (Flett & Hewitt, 2016). This finding also provides an important backdrop for any

benefits of promoting perfectionistic standards among youth sport participants. Specifically, on one hand, pursuing high personal standards may be energizing and contribute to some positive feelings, but it could come at a cost to the quality of moral and social development.

Dropout from Youth Sport

The final variable we examined was intentions to dropout of youth sport. We speculated that the different configurations of PSP and ECP provide the basis for different emotional and social experiences in youth sport and, in turn, likelihood of dropout. All the hypotheses of the 2 × 2 model were supported (H1a, H2, H3, and H4). As such, personally endorsing perfectionistic standards seemingly provides the greatest commitment to sport participation and experiencing externally imposed perfectionistic standards provides the least commitment. These findings offer the clearest indication so far that perfectionism may play a role in whether youth sport participants are likely to remain engaged in sport or not.

The findings regarding intentions to dropout are also important because they serve as a valuable reminder of the motivational qualities of perfectionism, more broadly. That is, whilst perfectionism is believed to be a characteristic that energizes higher levels of motivation, there are also strong avoidance tendencies associated with perfectionism that may encourage youth sport participants to dropout (Stoeber, Damian, & Madigan, 2018). Self-handicapping, procrastination, and withdrawal are some of the more insidious avoidance tendencies that are associated with perfectionism outside of sport (e.g., Doebler, Schnick, Beck, & Astor-Stetson, 2000; Flett & Hewitt, 2006; Flett, Hewitt, Davis, & Sherry, 2004). These tendencies have not received due attention in sport. However, they are highly relevant to this domain and warrant consideration alongside the energizing aspects of perfectionism that are typically highlighted (e.g., Stoeber et al., 2018).

Practical Implications

The study has clear implications for practitioners in youth sport. The findings suggest

that some perfectionistic youth sport participants will be more anxious, display more antisocial behaviors, and be more likely to dropout than their peers. Managing young people's sense of external pressure to be perfect, in particular concern over making mistakes, appears especially important in these regards. One strategy to do so is to try to reduce perfectionism directly. Gustafsson and Lundqvist (2016) highlight the value in integrating cognitive-behavioral techniques to help change negative thoughts, beliefs, and attitudes about needing to be perfect. Further, Gaudreau (2019) indicates the potential merit of reframing goals in terms of being competent or excellent, rather than perfect. If practitioners are not familiar with such techniques or are not confident in using them, an indirect strategy that most practitioners will be able to employ is to purposively construct a coaching environment that is more supportive and less perfectionistic. Specifically, embedding social cues that encourage youth sport participants to focus on setting achievable goals, cooperation, and skill development could help to promote striving without excessive concerns (Nordin-Bates, Hill, Cumming, & Redding, 2014). Developing such environments may help moderate perfectionism and promote more positive emotions (e.g., enjoyment), discourage antisocial behaviors, and reduce dropout (e.g., Harwood, Keegan, Smith, & Raine, 2015).

Limitations and Future Directions

There are several limitations to this study that need consideration. First, the cross-sectional design means that direction and causality cannot be inferred from the relationships. Researchers may wish to employ longitudinal and experimental designs, respectively, to move towards such inferences. The findings were also based on youth sport participants' self-reports. In this study, this is important because of the potential for social-desirability response bias in context of antisocial behavior (van de Pol, Kavussanu, & Claessens, 2018) and intentions to, not actual, dropout behavior was measured. One means to address this issue in future research would be to replicate the current study and include observer ratings of moral

behaviors (e.g., peer-reports) and more objective measures of dropout. Generalizability is also limited to populations similar to the one used in the current study. Adult and elite junior athletes, as opposed to school- and community-based sports participants, for example, may display somewhat different findings in regard to anxiety (e.g., Levinson et al., 2015; Lundqvist, Kenttä, & Raglin, 2011). Similarly, the manner in which PSP and ECP were constituted is a consideration. It should not be assumed that the current findings extend to other instruments or combinations of subscales of perfectionism, which may result in different hypotheses being supported.

Conclusion

The findings suggest that subtypes of perfectionism can be distinguished based on their association with negative experiences in youth sport. Pure ECP was typically associated with indicators of the most negative youth sport experiences and Pure PSP was typically associated with indicators of the least negative youth sport experiences. One notable exception was antisocial behavior towards teammates and opponents for which a Mixed perfectionism subtype was most problematic.

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783 Table 1. *Descriptive statistics and bivariate correlation coefficients between variables (N = 222).*

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1. Personal standards perfectionism	2.91	0.86	.86											
2. Evaluative concerns perfectionism	2.59	0.87	.69**	.84										
3. Negative affect	2.09	0.69	.33**	.52**	.77									
4. Positive affect	3.80	0.58	.08	-.24**	-.44**	.72								
5. Concentration disruption	1.54	0.53	-.04	.20**	.31**	-.23**	.82							
6. Worry	2.69	0.80	.20**	.24**	.30**	-.15*	.22**	.89						
7. Somatic anxiety	1.80	0.66	.16*	.23**	.26**	-.11	.42**	.49**	.84					
8. Antisocial behavior teammates	1.78	0.89	.36**	.35**	.18**	.02	-.05	-.11	-.04	.88				
9. Antisocial behavior opponents	1.62	0.90	.44**	.43**	.20**	-.08	-.05	-.11	.02	.74**	.93			
10. Prosocial behavior teammates	4.27	0.71	.05	-.07	.02	.20**	-.05	.17*	.10	-.16*	-.10	.82		
11. Prosocial behavior opponents	3.28	1.03	.07	.06	.07	-.03	.09	-.00	.09	.06	.10	.39**	.81	
12. Intentions to dropout	1.44	0.74	-.08	.10	.20**	-.34**	.25**	.07	.12	.14	.19**	-.20**	.04	.86

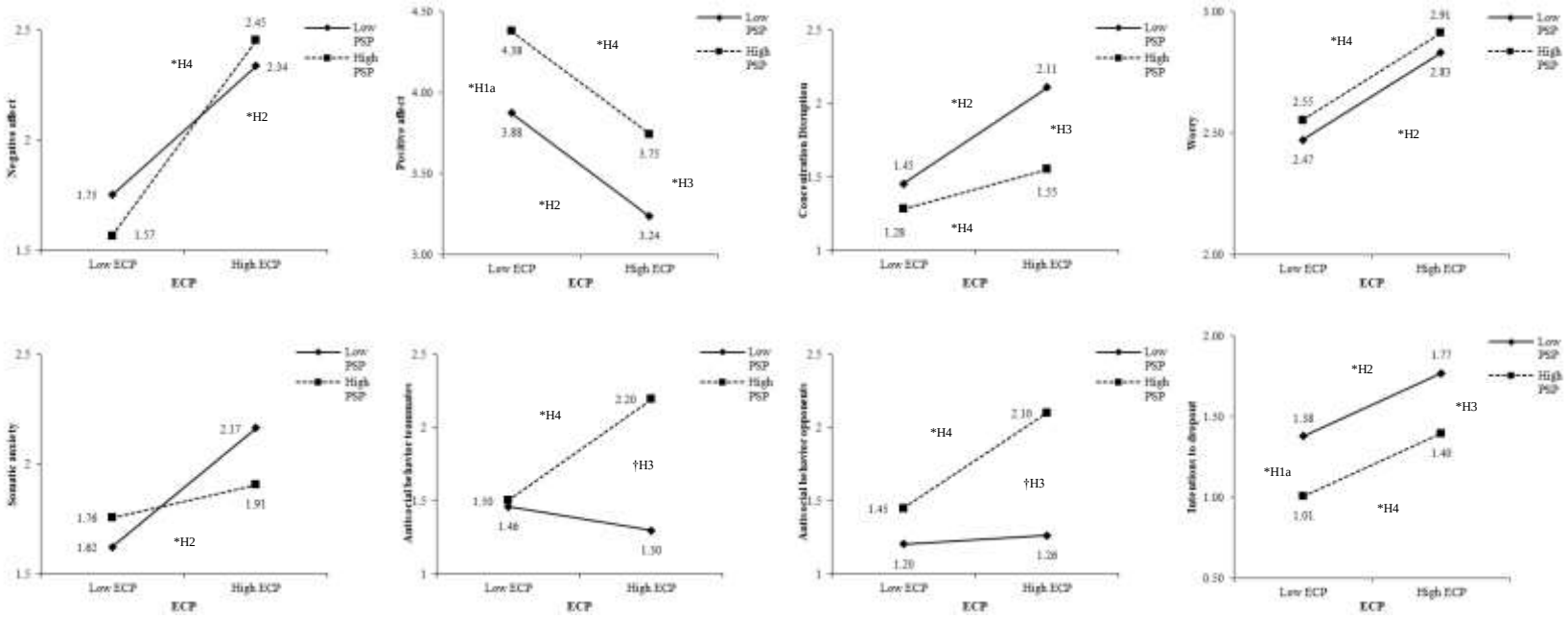
784 Note. *$p < .05$; **$p < .01$; internal reliability alpha coefficients are shown on the diagonal.

Table 2. *Summary of the supported, unsupported, and contradicted hypotheses of the 2 × 2 model of perfectionism and standardized effect sizes.*

	Hypothesis 1 Pure PSP vs. Non-perfectionism (*d*)	Hypothesis 2 Non-perfectionism vs. Pure ECP (*d*)	Hypothesis 3 Mixed perfectionism vs. Pure ECP (*d*)	Hypothesis 4 Pure PSP vs. Mixed perfectionism (*d*)
Negative affect	ns. (-0.26)	* (-0.86)	ns. (0.16)	* (-1.28)
Positive affect	a* (0.86)	* (1.10)	* (0.88)	* (1.09)
Concentration disruption	ns. (-0.32)	* (-1.25)	* (-1.06)	* (-0.51)
Worry	ns. (0.10)	* (-0.45)	ns. (0.10)	* (-0.45)
Somatic anxiety	ns. (0.21)	* (-0.83)	ns. (-0.39)	ns. (-0.23)
Antisocial behavior teammates	ns. (0.04)	ns. (0.18)	† (1.01)	* (-0.79)
Antisocial behavior opponents	ns. (0.28)	ns. (-0.07)	† (0.93)	* (-0.72)
Intentions to dropout	a* (-0.50)	* (-0.53)	* (-0.50)	* (-0.53)

Note. *d* = Cohen's *d* calculated by dividing the difference in predicted values between two subtypes of perfectionism by the standard deviation of the criterion variable (see Gaudreau & Verner-Filion, 2012); a = H1a; * denotes a significant difference between two subtypes in the predicted direction ($p < .05$) and so the hypothesis is supported; ns. denotes a non-significant difference between two subtypes ($p > .05$) and so the hypothesis is unsupported; † denotes a significant difference between two subtypes in the opposite direction to predicted ($p < .05$) and so the hypothesis is contradicted. PSP = personal standards perfectionism; ECP = evaluative concerns perfectionism.

Figure 1. *Predicted values and supported, unsupported, and contradicted hypotheses across the four subtypes of perfectionism.*



Note. * denotes a significant difference between two subtypes in the predicted direction $p < .05$; † denotes a significant difference between two subtypes in the opposite direction to predicted $p < .05$; PSP = personal standards perfectionism; ECP = evaluative concerns perfectionism.