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Perfectionism and Emotion Regulation in Coaches: A Test of the 2 × 2 Model of Dispositional Perfectionism

Andrew P. Hill
University of Leeds, UK
Paul A. Davis
Northumbria University, UK

Author Note

Andrew P. Hill, Faculty of Biological Sciences, University of Leeds; Paul A. Davis, Faculty of Health and Life Sciences, Northumbria University.

Correspondence concerning this article should be addressed to Andrew Hill, Faculty of Biological Sciences, University of Leeds, Leeds, LS2 9JT, UK.
E-mail: a.p.hill@leeds.ac.uk

Abstract

The manner in which coaches regulate their emotions has implications for their performance and well-being. Drawing on research that has found perfectionism to predict emotion regulation in other settings, this study adopted the 2 × 2 model of perfectionism to examine whether subtypes of perfectionism among coaches were associated with variation in the use of emotion regulation strategies. Coaches (*N* = 238, *M* age = 23.92, *SD* = 10.32) from various sports completed measures of perfectionism (personal standards and evaluative concerns) and emotion regulation strategies (expressive suppression, cognitive reappraisal, and control of anger directed inwards and outwards). Moderated hierarchical regression provided mixed support for the 2 × 2 model. As expected, pure personal standards perfectionism (high personal standards/low concerns) was generally associated with the highest capacity for emotion regulation and pure evaluative concerns perfectionism (low personal standards/high concerns) with the lowest. Unexpectedly, mixed perfectionism (high personal standards/high concerns) was associated with the highest level of expressive suppression.

Introduction

The ability to manage and control emotions is central to successful performance in sport (Hanin, 2000). To date, the majority of research in sport has been dedicated to examining the emotion regulation process in athletes, with little attention given to coaches (Lane, Beedie, Jones, Uphill, & Devonport, 2012). This is surprising given the importance of emotion regulation by coaches. Effective emotion regulation is critical for coaches in order to maintain harmonious relationships with others (e.g., athletes and other coaches) and safeguard their own well-being (Jowett & Nezlek, 2012; Tamir & Mauss, 2011). How coaches regulate their own emotions also has implications for the athletes they work with, influencing how athletes attempt to manage their emotions and determining subsequent emotional experiences and performances (Davis & Jowett, 2010; Lafrenière, Jowett, Vallerand, & Charbonneau, 2011). Consequently, effective emotion regulation is essential for successful sport coaching.

Emotion regulation in sport

A number of theories have been developed to explain the manner in which individuals control or regulate emotions (see Koole, 2009, for a review). In sport, researchers have applied Gross's (1998) model to better understand patterns of emotion regulation (e.g., Lane, Davis, & Devonport, 2011; Uphill, McCarthy & Jones, 2009; Wagstaff, Fletcher, & Hanton, 2012). According to Gross (1998; Gross & John, 2003), emotion regulation strategies can be categorized as either (a) antecedent-focused (i.e., initiated before the emotion occurs) or (b) response-focused (i.e., initiated after the emotion occurs). Individuals are thought to display different preferences for implementing these types of strategies. Those who typically adopt an antecedent-focused approach to emotion regulation are thought to prefer *reappraisal* whereby they attempt to alter perceptions of the emotion-eliciting situation. Conversely,

individuals who typically employ response-focused strategies are inclined to utilise *suppression* in an effort to inhibit ongoing emotion-expressive behaviour.

Whether efforts to regulate emotion are successful is the result of a complex interaction between personal and situational factors (Optiz, Gross, & Urry, 2012). Therefore, in some circumstances emotion regulation strategies may be instrumental in goal pursuit but in other circumstances the same strategies may be detrimental (Tamir, 2009). In this sense, no emotion regulation strategy is inherently facilitative or debilitative (Tamir, Chiu & Gross, 2007). This is especially evident in the coaching domain where in order to be effective coaches must be responsive to the multifacted demands of the role (Côté & Gilbert, 2009). These demands include responding to the specific context of the coaching (e.g., elite performance or youth participation) and attempting to employ behaviours which are most appropriate (Sullivan, Paquette, Holt & Bloom, 2012). In addition, they must understand their athletes' emotional experiences and attempt to align their goals and efforts accordingly (Lorimer, 2013). However, this complexity aside, research suggests that when utilised regularly some emotion regulation strategies are more likely to contribute to positive outcomes, whereas others are more likely to contribute to negative outcomes. This is evident for a range of emotion regulation strategies, such as rumination, problem-solving, and avoidance (see Aldao, Nolen-Hoeksema, & Schweizer, 2010, for a review), and is also the case for expressive suppression and cognitive reappraisal.

The reasons why habitual utilisation of expressive suppression and cognitive reappraisal contribute to divergent outcomes are described by Gross (1998) and colleagues (Gross & John, 2003; Richards & Gross, 2000). Cognitive reappraisal is associated with early intervention in the emotion-generative process and allows not only modification of feelings but also behaviours. Consequently, it provides greater opportunity to effectively regulate positive and negative emotions. By contrast, expressive suppression is associated with much

later intervention in the emotion-generative process, providing a means of altering behaviour but having a limited influence on the feelings experienced. Utilising expressive suppression means enduring emotion requires ongoing effortful management and, because emotions remain hidden, can create a sense of inauthentic relations with others. In support of this perspective, research in this area has found that expressive suppression consistently contributes to negative affective experiences, lower general well-being, and poorer interpersonal functioning, and cognitive reappraisal has opposite effects (Gross, 1998; Gross & John, 2003; Richards & Gross, 2000).

Individual differences in emotion regulation can also be measured in relation to specific emotions, such as anger. Anger is an emotion consisting of feelings that range from mild irritation to intense fury and rage (Spielberger, 1999). Drawing on early research (e.g., Funkenstein, King, & Drolette, 1954), Spielberger (1999) describes how feelings of anger can be directed toward the self (*anger-in*) and directed outwards towards others or the environment (*anger-out*). The frequency of inward and outward expression has different intrapersonal and interpersonal effects that impact upon individuals' health and relationships (Iyer, Korin, Higginbotham, & Davidson, 2010; Van Kleef, 2009). Importantly, the failure to regulate or control anger is associated with an adverse impact on health and performance (Haukkala, Konttinen, Laatikainen, Kawachi, & Uutela, 2010; Robazza & Bortoli, 2007). Therefore, due to the greater flexibility that the ability to regulate anger affords, regardless of its guise, higher levels of control over anger provides greater capacity for anger regulation (Bresin & Robinson, in press; Ruiz & Hanin, 2011).

The importance of the emotion regulation strategies discussed (viz. anger directed inwards and outwards, cognitive reappraisal and expressive suppression) in sport and coaching, in particular, are evident in research in this area. Anger is a common emotion in sport and is one of the more frequent emotions observed in coaches (Keegan, Harwood,

Spray, & Lavalee, 2009; Kerr & Stirling, 2012; Omli & LaVoi, 2009). Similarly, although studied less, the use of reappraisal and suppression has been found to be used extensively in sport organisations to negotiate interpersonal relationships (Wagstaff et al., 2012). The use of these strategies have also been found to predict a range of outcomes in sport, such as athletic performance and the emotional experiences of athletes (e.g., Davis, Woodman, & Callow, 2010; Uphill, Lane & Jones, 2012). As yet, the use of these strategies among coaches has received comparatively little attention. However, research does suggest that these strategies are likely to be important in terms of a coach's ability to manage their own emotions, the emotions of their athletes, and their overall effectiveness as a leader (Davis, 2011; Haver, Akerjordet & Furunes, 2013).

Multidimensional perfectionism in sport

One factor that may influence the emotion regulation strategies adopted by coaches is perfectionism. Perfectionism is an achievement related personality trait that includes a combination of a commitment to exceedingly high standards and self-critical evaluative tendencies (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991). A number of models and measures have been developed to capture features of perfectionism (see Enns & Cox, 2002, for a review). While the specific content of these models differ, factor-analytical studies indicate they typically include sub-dimensions of perfectionism that measure one of two broad dimensions (e.g., Cox, Enns, & Clara, 2002; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). The first is *personal standards perfectionism* (PSP) which has been defined as the self-oriented tendency to set and strive for exceptionally high standards (Gaudreau & Thompson, 2010). The second is *evaluative concerns perfectionism* (ECP) which has been defined as a socially prescribed tendency to perceive that others are exerting pressure to be perfect with additional harsh self-evaluation and self-doubt regarding one's capacity to meet those standards (Gaudreau & Thompson, 2010).

These two dimensions have divergent effects across a wide range of outcomes (see Gotwals, Stoeber, Dunn, & Stoll, 2012, and Stoeber & Otto, 2006, for reviews). In sport, this has been found to be the case for various patterns of cognition (e.g., attributions for success and failure), affect (e.g., anger), and behaviour (e.g., performance) exhibited by athletes and more recently coaches (e.g., burnout; Tashman, Tenenbaum, & Eklund, 2010). Of note here is that these effects extend to emotion regulation. Outside of sport, evaluative concerns perfectionism has been found to contribute to a reliance on response-focused strategies, including higher levels of expressive suppression and lower levels of cognitive reappraisal (e.g., Bergman, Nyland, & Burns, 2007; Flett, Hewitt, & De Rosa, 1996; Hewitt et al., 2002). There is also evidence that evaluative concerns perfectionism is a source of greater anger reactivity for athletes, alluding to poorer control of the emotion (e.g., Dunn, Gotwals, Causgrove Dunn, & Syrotuik, 2006; Vallance, Dunn, & Causgrove Dunn, 2006). In contrast, evidence is more mixed in terms of personal standards perfectionism. Specifically, research suggests it is influential in terms of wider coping processes (e.g., Gaudreau & Antl, 2008) but may be comparatively less important in terms of emotion regulation as it has been found to be unrelated to general emotion regulation strategies and those specific to anger (e.g., Bergman et al., 2007; Flett et al., 1996; Hewitt et al., 2002).

The 2 × 2 model of dispositional perfectionism

One of the recent developments in this area is that researchers have begun to examine the interplay between the two dimensions of perfectionism. Impetus for doing so has been provided by the 2 × 2 model of dispositional perfectionism (Gaudreau & Thompson, 2010; Gaudreau, 2013). This model emphasizes the notion that the two broad dimensions of perfectionism coexist within each individual to varying degrees. As described by Gaudreau and colleagues, the within-person combinations are operationalized in four combinations or subtypes: pure personal standards perfectionism (high PSP/low ECP), pure evaluative

concerns perfectionism (low PSP/high ECP), mixed perfectionism (high PSP/high ECP), and non-perfectionism (low PSP/low ECP). These are not considered directly observable categories, but are latent entities that are inferred conceptually and statistically. The subtypes are purported to reflect varying degrees of internalisation (internal regulated versus external regualted). Pure personal standards perfectionism is a uniquely personally oriented subtype (internally regulated), whereas pure evaluative concerns perfectionism is a subtype derived from social pressure (non-internalised or externally regulated). Mixed perfectionism includes both perceived pressure from others to strive toward perfection and personal endorsement of these standards (partially internally regulated). Finally, non-perfectionism does not include perceptions of social pressure or have any personal endorsement of setting or pursuing perfectionist standards.

Within organismic theories of motivation, internalisation is a process whereby activities can be more or less integrated in to one's self-concept and corresponds with better or worse psychological adjustment (see Deci & Ryan, 2008, for further details). This is reflected in the expected differences between subtypes in functional outcomes which are formalised in 4 hypotheses. The first hypothesis focuses on whether pure personal standards perfectionism is healthier (h1a) or unhealthier (h1b) in comparison to non-perfectionism (with no difference offering inconclusive evidence for both, hypothesis h1c). In doing so, it addresses a debate regarding the valence of pure personal standards perfectionism and its subsets (see Flett & Hewitt, 2006). The second and third hypotheses relate to the supposition that as pure evaluative concerns perfectionism is the only fully externally regulated subtype it should be to the least healthy relative to other subtypes. This is tested through comparison with non-perfectionism (h2) and mixed perfectionism (h3). Hypothesis 3 also tests a key tenet of the 2 × 2 model which is that the presence of internally regulated dimensions of perfectionism (personal standards perfectionism) may attenuate the influence of externally

regulated dimensions of perfectionism (evaluative concerns perfectionism). The fourth hypothesis is that mixed perfectionism, a partially internalised subtype of perfectionism, should be associated with poorer adjustment in comparison to pure personal standards, an internally regulated subtype of perfectionism (h4).

A small number of studies have examined the 2 × 2 model (Cumming & Duda, 2012; Douilliez & Lefèvre, 2011; Gaudreau, 2012; Gaudreau & Thompson, 2010; Gaudreau & Verner-Filion, 2012; Hill, 2013). These have typically offered some support for its hypotheses. Of especial relevance here is that subtypes derived using the broad dimensions of perfectionism have been found to correspond with varying emotional experiences in a manner that supports consideration of the subtypes (Gaudreau & Thompson, 2010; Hill, 2013). For instance, Gaudreau and Thompson (2010) found support for the hypotheses of the model when assessing differences between subtypes in terms of general positive affect (h1a, h2, h3, and h4) and negative affect (h1c, h2, h3, and h4). More recently, Hill (2013) reported similar findings when assessing an affective component of athlete burnout, emotional and physical exhaustion (h1c, h2, and h4). Research has yet to examine how subtypes of perfectionism influence emotion regulation. However, the differences between them in terms of emotional experiences alludes to variation consistent with the 2 × 2 model, with the presence of high evaluative concerns perfectionism corresponding with greater use of emotion regulation strategies typically associated with more negative affective experiences (e.g., higher expressive suppression, lower cognitive reappraisal, and lower control of anger). The current study examines this possibility and in doing so provides a further test of the hypotheses of the 2 × 2 model.

In summary, the purpose of the current study was to examine whether subtypes of perfectionism among coaches were associated with variation in the use of emotion regulation strategies. In doing so, the hypotheses of the 2 × 2 model of dispositional perfectionism were

tested in relation to expressive suppression, cognitive reappraisal, and control of anger (directed inwards and outwards). The first hypothesis was that pure personal standards perfectionism would be associated with lower expressive suppression, higher cognitive reappraisal, and higher control of anger than non-perfectionism (hypothesis 1a). The second and third hypotheses were that pure evaluative concerns perfectionism would be associated with the highest level of expressive suppression and lowest levels of cognitive reappraisal and control of anger (hypothesis 2 is in comparison to non-perfectionism and hypothesis 3 is in comparison to pure evaluative concerns perfectionism). The fourth hypothesis was that mixed perfectionism would be associated with higher expressive suppression, lower cognitive reappraisal, and lower control of anger than pure personal standards perfectionism (hypothesis 4).

Method

Participants

Two-hundred and thirty-eight coaches in the UK took part in the study (age *M* = 23.92, *SD* = 10.32, range 18 to 69, males = 177, females = 61). They were recruited via advertisements sent to sport organisations and from current coaches pursuing further education on sport coaching degree programmes. Coaches came from a range of individual and team sports (e.g., football, rugby, athletics, and swimming). On average, they had coached for 4.31 years (*SD* = 5.45) and were currently coaching 4.44 hours per week (*SD* = 4.43). They reported a range of coaching qualifications, the most common were level 1 and level 2 national governing body qualifications (level 1 *n* = 118 and level 2 *n* = 53). A small number reported no formal coaching qualifications (*n* = 14). Coaches completed a standardized multi-section questionnaire containing measures of the constructs of interest in either hardcopy or electronic format.

Instruments

Perfectionism. The broad dimensions of perfectionism were assessed using the brief versions of Hewitt and Flett's (1991; H-MPS) and Frost et al's (1990; F-MPS) Multidimensional Perfectionism Scales (Cox et al., 2002). For the brief H-MPS participants were asked to respond to general statements concerning their "personal characteristics and traits" on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Three 5-item subscales are included on the instrument of which two were used in the current study: self-oriented perfectionism (SOP: e.g., "I am perfectionistic in setting my goals.") and socially prescribed perfectionism (SPP: e.g., "I feel that people are too demanding of me."). Evidence to support the validity and reliability of this instrument has been provided by Cox et al. (2002). This includes assessment of factor structure (confirmatory factor analysis) and internal reliability in both student and clinical samples (SOP $\alpha = .84$ and SPP $\alpha = .85$). The shortened subscales are strongly related to the original subscales (SOP $r = .95$ and SPP $r = .94$; Cox et al., 2002).

For the shortened version of Frost et al.'s (1990) Multidimensional Perfectionism Scale (Cox et al., 2002) participants were also asked to respond to general statements concerning their "personal characteristics and traits" on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The instrument contains four subscales of which four were used in the current study: personal standards (PS; 5-items, e.g., "I set higher goals than most people."), concern over mistakes (COM; 5-items, e.g., "If I fail partly, it is as bad as being a complete failure."), doubts about actions (DAA; 4-items, e.g., "I usually have doubts about the simple everyday things I do."), and parental pressure (PP; 5-items, e.g., "I never felt like I could meet my parents' standards."). Evidence to support the validity and reliability of the instrument has been provided by Cox et al. (2002) in the form of assessing factor structure (confirmatory factor analysis) and internal consistency ($\alpha = .63$ to $.90$). The subscales of the

shortened version are also highly correlated with the originals (r = .87 to .98) but have the advantage of better factor structure (see Cox et al., 2002).

With the aim of building directly upon existing research testing the 2 × 2 model using the broad dimensions of perfectionism (Douilliez & Lefèvre, 2011; Gaudreau & Thompson, 2010; Hill, 2013), self-oriented perfectionism and personal standards were used to create a personal standards perfectionism (PSP) composite and socially prescribed perfectionism, concern over mistakes, doubts about action, and parental pressure were used to create an evaluative concerns perfectionism (ECP) composite. This was calculated by standardizing the subscale scores so that each carried equal weight and then adding them together. This model was assessed in the current study by confirmatory factor analysis using AMOS version 19.0 (Arbuckle, 2010) with maximum likelihood estimation. Specifically, a model was tested that included standardized subscale scores as indicators of two related latent factors (viz. PSP and ECP). This model was considered to be acceptable: χ^2 (8) = 47.26, CFI = .90, TLI = .82, RMSEA = .15, 90% CI = .11 to .19, SRMR = .08, and all standardized factor loadings ≥ .44.[1]

Emotion regulation. The Emotion Regulation Questionnaire (Gross & John, 2003) was used to assess individual differences in the typical use of cognitive reappraisal and expressive suppression to regulate emotion. This asked participants to respond to questions with reference to emotional aspects of their life on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The cognitive reappraisal subscale contains 6-items that capture the tendency to alter perceptions of the emotion-eliciting situation in a way that changes its emotion impact (e.g., “When I want to feel more positive emotion (such as joy or amusement), I change what I’m thinking about.”). The expressive suppression subscale contains 4-items that capture the tendency to inhibit on-going emotion-expressive behaviour (e.g., “I control my emotions by not expressing them.”). Evidence to support the validity and

reliability of the instrument has been provided by Gross and John (2003). This includes factorial structure (confirmatory factor analysis) and internal consistency (α = .68 to .76).

Control of anger. Control of anger was measured using two subscales from the State-Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999). Participants were asked how they "generally react when angry or furious" and responded on a 4-point Likert scale (1 = *almost never* to 4 = *almost always*). These two subscales assess how often individuals attempt to control the outward expression of feelings of anger (anger control-out; 8-items, e.g. "Control urge to express angry feelings.") and the inward expression of anger by calming down or cooling off (anger control-in; 8-items, e.g. "Try to soothe angry feelings."). Evidence to support the validity and reliability of the instrument has been provided by Spielberger (1999) and others (e.g., Martin & Dahlen, 2005). This includes factorial structure (exploratory factor analysis) and internal consistency (α = .86 to .91).

Results

Preliminary analysis

Prior to the main analyses, missing value analysis was conducted on the measured variables. There were 224 complete cases and 14 cases with incomplete data. Twelve of the coaches with incomplete data missed 1 item and the remaining 2 missed 2 items. There were 13 unique patterns of missing data that accounted for the missing data of all the participants. To preserve the characteristics of the data and minimise the impact of missing data imputation, missing data was replaced with the mean of the available items from the relevant subscale for that individual (Graham, Cumsille**,** & Elek-Fisk, 2003). Next, variables were screened for univariate and multivariate outliers using procedures outlined by Tabachnick and Fidell (2007). This led to the removal of 11 participants (*n* = 227). Following this procedure, the data was considered to be approximately normally distributed. Assessment of

internal consistency of the subscales (Cronbach's α) provided evidence to support their reliability (see Table 1).

Descriptive statistics and bivariate correlations

Descriptive statistics and bivariate correlations are reported in Table 1. Personal standards perfectionism and evaluative concerns perfectionism were positively correlated. Cognitive reappraisal and expressive suppression were uncorrelated. Anger control-in and anger control-out were positively correlated. Personal standards perfectionism was positively correlated with expressive suppression and cognitive reappraisal but uncorrelated with anger control-in and anger control-out. Evaluative concerns perfectionism was positively correlated with expressive suppression and uncorrelated with other emotion regulation strategies. With the exception of cognitive reappraisal and expressive suppression, the four emotion regulation strategies were typically positively correlated. Correlations among the variables ranged in size from small to large.

Moderated hierarchical regression and simple slopes analyses

The tests of the hypotheses were guided by the procedures described by Gaudreau (Gaudreau, 2012; Gaudreau & Thompson 2010). Hierarchical regression was conducted on each of the emotion regulation strategies. In step 1 this included the two perfectionism dimensions (main effects model). In step 2 an interaction term derived from the two dimensions was added (interaction effect model). If the interaction term was not statistically significant the main effects model was interpreted and predicted values for each subtype were plotted and interpreted using the heuristic provided by Gaudreau (2012) which allows for the hypotheses of the 2 × 2 model to be tested using only main effects. If the interaction term was statistically significant, simple slopes were calculated and interpreted (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). These estimated the relationship between PSP and emotion regulation strategies at low (-1 *SD*) and high (+1 *SD*) levels of ECP (first and second

simple slopes) and between ECP and emotion regulation strategies at low (-1 *SD*) and high (+1 *SD*) levels of PSP (third and fourth simple slopes). The first simple slope was used to compare the predicted values of non-perfectionism (low PSP/low ECP) with pure personal standards perfectionism (high PSP/low ECP) (hypothesis 1). The second slope was used to compare the predicted values of pure evaluative concerns perfectionism (low PSP/high ECP) and mixed perfectionism (high PSP/high ECP) (hypothesis 3). The third simple slope was used to compare the predicted values of non-perfectionism (low PSP/low ECP) with pure evaluative concerns perfectionism (low PSP/high ECP) (hypothesis 2). The fourth slope was used to compare the predicted values of pure personal standards perfectionism (high PSP/low ECP) and mixed perfectionism (high PSP/high ECP) (hypothesis 4). Results of these analyses are reported in Table 2.

Cognitive reappraisal: The interaction term was not significant for cognitive appraisal so only the main effects model was interpreted. The main effects model was statistically significant and explained 3% of variance in cognitive reappraisal. PSP was a significant positive predictor of cognitive reappraisal and ECP was not a significant predictor of cognitive reappraisal. The pattern of main effects provided support for hypotheses 1a and 3 (Gaudreau, 2012). Specifically, pure PSP was associated with higher cognitive reappraisal than non-perfectionism (in support of hypothesis 1a); pure ECP was associated with lower cognitive reappraisal than mixed perfectionism (in support of hypothesis 3); pure ECP was associated with similar levels of cognitive reappraisal to non-perfectionism (in opposition to hypothesis 2); and mixed perfectionism was associated with similar levels of cognitive reappraisal to pure PSP (in opposition to hypothesis 4). The predicted values for cognitive reappraisal across low (-1 *SD*) and high (+1 *SD*) levels of PSP and ECP are displayed in Figure 1.

Expressive suppression: The interaction term was statistically significant for expressive suppression so the interaction effect model was interpreted. The interaction effect model explained 13% of variance in expressive suppression in total with 11% accounted for by the main effects and a further 2% by the interaction term. Simple slopes analyses provided support for hypothesis 4 but contradicted hypothesis 3. Specifically, the simple slope of PSP at low levels of ECP was not significant (B = 0.02, SE = 0.06, β =.03, p > .05), indicating that there was no difference between Pure PSP and non-perfectionism in expressive suppression (aligned with hypothesis 1c). The simple slope of PSP at high levels of ECP was significant (B = 0.17, SE = 0.06, β = .27, p < .01), indicating that Mixed perfectionism was associated with higher expressive suppression than Pure ECP perfectionism (in contradiction to hypothesis 3). The simple slope of ECP at low levels of PSP was not significant (B =0.05, SE = 0.04, β =.12, p > .05), indicating that Pure ECP was associated with similar levels of expressive suppression than non-perfectionism (in opposition to hypothesis 2). The simple slope of ECP at high levels of PSP was statistically significant (B = 0.15, SE = 0.04, β =.36, p < .05), indicating that Mixed perfectionism was associated with higher expressive suppression than Pure PSP (in support of hypothesis 4). The predicted values for expressive suppression across low (-1 SD) and high (+1 SD) levels of PSP and ECP are displayed in Figure 2.

Anger control-in: The interaction term was not significant for anger control-in so only the main effects model was interpreted. The main effects model was statistically significant and explained 4% of variance in anger control-in. PSP was a significant positive predictor of anger control-in and ECP was a significant negative predictor of anger control-in. This pattern of main effects provided support for hypotheses 1a 2, 3 and 4 (Gaudreau, 2012). Specifically, pure PSP was associated with higher anger-in than non-perfectionism (in support of hypothesis 1a); pure ECP was associated with lower anger control-in than non-

perfectionism and mixed perfectionism (in support of hypotheses 2 and 4); and mixed perfectionism was associated with lower levels of anger control-in than pure PSP (in support of hypothesis 3). The predicted values for anger control-in across low (-1 *SD*) and high (+1 *SD*) levels of PSP and ECP are displayed in Figure 3.

Anger control-out: The interaction term was not significant for anger control-in so only the main effects model was interpreted. The main effects model was statistically significant and explained 5% of variance in anger control-out. PSP was a significant positive predictor of anger control-in and ECP was a significant negative predictor of anger control-out. This pattern of main effects provided support for hypotheses 1a 2, 3 and 4 (Gaudreau, 2012). Specifically, pure PSP was associated with higher anger-out than non-perfectionism (in support of hypothesis 1a); pure ECP was associated with lower anger control-out than non-perfectionism and mixed perfectionism (in support of hypotheses 2 and 4); and mixed perfectionism was associated with lower levels of anger control-out than pure PSP (in support of hypothesis 3). The predicted values for anger control-in across low (-1 *SD*) and high (+1 *SD*) levels of PSP and ECP are displayed in Figure 4.

Discussion

The purpose of the current study was to examine whether subtypes of perfectionism among coaches were associated with variation in the use of emotion regulation strategies. In doing so, the hypotheses of the 2 × 2 model of dispositional perfectionism were tested. The first hypothesis was that pure personal standards perfectionism would be associated with lower expressive suppression, higher cognitive reappraisal, and higher control of anger than non-perfectionism (hypothesis 1a). The second and third hypotheses were that pure evaluative concerns perfectionism would be associated with the highest level of expressive suppression and lowest levels of cognitive reappraisal and control of anger (hypothesis 2 is in comparison to non-perfectionism and hypothesis 3 is in comparison to pure evaluative

concerns perfectionism). The fourth hypothesis was that mixed perfectionism would be associated with higher expressive suppression, lower cognitive reappraisal, and lower control of anger than pure personal standards perfectionism.

Hypothesis 1a was supported in that pure personal standards perfectionism was associated with higher levels of cognitive reappraisal and higher control of anger (inwards and outwards) in comparison to non-perfectionism. However, these two subtypes were also associated with similar levels of expressive suppression, providing inconclusive evidence for the hypothesis 1a (but aligned with hypothesis 1c). The second hypothesis received partial support as pure evaluative concerns perfectionism was associated with lower levels of control of anger (inwards and outwards) than non-perfectionism, but similar levels of cognitive reappraisal and expressive suppression. The third hypothesis received mixed support because while pure evaluative concerns perfectionism was associated with lower levels of cognitive reappraisal and control of anger (inwards and outwards) in comparison to mixed perfectionism, it was also associated with lower levels of expressive suppression. Finally, the fourth hypothesis received partial support with mixed perfectionism associated with higher levels of expressive suppression and lower control of anger (inwards and outwards) than pure personal standards perfectionism but similar levels of cognitive reappraisal.

Subtypes of perfectionism and emotion regulation

The healthy valence of pure personal standards perfectionism relative to non-perfectionism was evident in the higher levels of cognitive reappraisal and control of anger directed inwards and outwards. This suggests that coaches exhibiting this subtype of perfectionism will manage emotion in a more pre-emptive manner and be more adept at controlling feelings of anger. There appears, therefore, to be some benefit to the pursuit of exceedingly high standards for coaches in terms of emotion regulation. However, this did not extend to the use of expressive suppression where evidence of its healthy valence was

inconclusive. This latter finding is similar to research elsewhere in that the comparative benefits of pure personal standards perfectionism appear to be most apparent when comparing indicators of adjustment (e.g., cognitive reappraisal), rather than indicators of maladjustment (e.g., emotional suppression). Therefore, these emotion regulation strategies can be considered alongside other indicators that differentiate the two subtypes (e.g., academic satisfaction and general positive affect) and those that do not (e.g., general negative affect, emotional exhaustion, and depression; Douilliez & Lefèvre, 2011; Gaudreau & Thompson, 2010; Hill, 2013).

According to the 2 × 2 model, pure evaluative concerns perfectionism is the most problematic subtype as it is solely externally regulated by social pressures, such as contingencies of self-worth (Gaudreau & Verner-Filion, 2012). This was partially evident in the contrasts with non-perfectionism and mixed perfectionism. In particular, the presence of high evaluative concerns perfectionism coincided with a comparative deficit in anger control relative to these two subtypes. Of note, however, while pure evaluative concerns perfectionism generally displayed a lower capacity for emotion regulation than mixed perfectionism, surprisingly, there was also evidence that coaches who exhibit mixed perfectionism may be prone to *higher* levels of expressive suppression. While there have been some instances where differences have not emerged between the two subtypes (e.g., depression and emotional exhaustion; Douilliez & Lefèvre, 2011; Hill, 2013), this is the first time a difference has occurred in the opposite direction to expectations. Presuming the problematic consequences of habitual use of expressive suppression (see Gross, 1998; Gross & John, 2003; Richards & Gross, 2000), this provides the first indication that pure evaluative concerns perfectionism may not always be the most problematic subtype. Moreover, there may be instances when personal standards perfectionism do not attenuate but actually exacerbate the influence of evaluative concerns perfectionism.

Evidence of the comparative benefits of pure personal standards perfectionism in relation to mixed perfectionism was partially evident. Consistent with the expectations of the 2 × 2 model, mixed perfectionism was associated with higher use of expressive suppression and lower control of anger directed inwards and outwards in comparison to pure personal standards perfectionism. However, there was no difference between the two subtypes in terms of cognitive reappraisal. When considered alongside findings for hypothesis 1 and 3, these differences appear to indicate two things. Firstly, partially internalised subtypes of perfectionism (i.e., mixed perfectionism) are likely to be associated with strategies that leave coaches less able to regulate their emotions in comparison to fully internalised subtypes of perfectionism (i.e., pure personal standards perfectionism). Secondly, regardless of the level of evaluative concerns perfectionism, the presence of high personal standards perfectionism appears to assure higher cognitive reappraisal.

The 2 × 2 model of perfectionism

The 2 × 2 model has prompted constructive debate amongst researchers in this area; in particular, Stoeber (2012) and Gaudreau (2013). While there is some disagreement between researchers in how best to refine and test the model, there is also agreement that the model has the potential to make a significant contribution to our understanding of perfectionism by encouraging examination of the interplay between dimensions. Researchers have been quick to respond to its formalisation and have begun to test its hypotheses across various achievement contexts and for various outcomes. The current study provided the first test of this model with regards to the manner in which coaches regulate their emotions and found the model to account for some differences among subtypes but not others. In this regard, the findings add further information about other potential moderating factors within the model. Specifically, hypotheses 1a may be more likely to be supported when indicators of positive adjustment are assessed (i.e., more adept emotion regulation) than when indicators of

negative adjustment are assessed (i.e., more problematic emotion regulation). Additional studies of this kind are required in order to evaluate if and when the model adequately predicts the effects of perfectionism in sport and other contexts.

Limitations and other future directions

The study is cross-sectional therefore no causal inferences can be made in terms of perfectionism and emotion regulation. In this regard, longitudinal and experimental designs provide a necessary next step in this line of enquiry. The study adopted self-report measures of both perfectionism and emotion regulation. Researchers have begun to use other means of measurement in the areas of perfectionism and emotion regulation (e.g., other-report; Flett, Besser, & Hewitt, 2005) which provide means of verifying the current findings. The sample also included a diverse range of coaches that varied in gender, age, coaching experience, and sport. While this provides a strong starting point in terms generalizability, it is possible that some of these factors may moderate the observed effects. For example, it is possible that the relationships between perfectionism and emotion regulation strategies are moderated by gender because males and females are known to have different preferences for the manner in which emotions are managed (e.g., Garnefski, Teerds, Kraaij, Legerstee, & Van Den Kommer, 2004; Safdar et al., 2009). Finally, perfectionism and emotion regulation were measured at a general-level, as opposed to a domain-level. While it is reasonable to assume that coaches' general perfectionism and preferences for emotional regulation will be expressed in this important life-domain, future researchers may also wish to confirm this using domain-specific measures (or even situational-specific measures, such as in training and during competition).

Conclusion

The current study provided evidence that perfectionism influences the emotion regulation employed by coaches. In addition, there was evidence that the subtypes of

perfectionism provide additional insight into their patterns of emotion regulation among coaches (i.e., consideration of both dimensions of perfectionism offered greater understanding of emotion regulation). As expected, pure personal standards perfectionism was associated with the highest capacity for emotion regulation (joint highest use of cognitive reappraisal and highest control of anger directed inwards and outwards) and pure evaluative concerns perfectionism with the lowest capacity (joint lowest cognitive reappraisal and lowest anger control inwards and outwards). Unexpectedly, however, mixed perfectionism (high personal standards/high concerns) was associated with the highest levels of expressive suppression suggesting that in some instances personal standards perfectionism might exacerbate rather than attenuate perfectionistic concerns.

Footnotes

[1] Exploration of this model to identify areas of misfit indicated that none of the standardized residual covariances exceeded 2.58 but two exceeded 1.96 (personal standards with parental pressure = -2.30 and personal standards with concern over mistakes = 2.30) and therefore provided two statistically significant discrepancies in the implied and observed data (Byrne, 2001). Modification indices indicated that improvement in fit (so to exceed conventional criteria for 'good' fit) would be gained through re-specification of the model allowing for cross-loading of some of the sub-dimensions of perfectionism on latent factors (notably an inverse loadings of parental pressure on PSP and positive loading of concern over mistakes on PSP): χ^2 (6) = 19.51, CFI = .97, TLI = .92, RMSEA = .10, 90% CI = .05 to .15, SRMR = .05.Given that the assumption of zero cross-loadings may be overly restrictive in this context (Marsh, Muthén, Asparouhov, Lüdtke, Robitzsch, Morin, et al., 2009), the observed fit here was considered acceptable.

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Table 1 – Descriptive statistics and bivariate correlation coefficients

	M	*SD*	*Range*	1	2	3	4	5	6
1. Personal standards perfectionism (PSP)	7.93	1.67	2-12	.87					
2. Evaluative concerns perfectionism (ECP)	9.86	2.27	4-26	.47**	.86				
3. Cognitive reappraisal	4.91	1.00	1-7	.17*	.03	.82			
4. Expressive suppression	3.98	1.14	1-7	.26**	.31**	.09	.70		
5. Anger control-in	3.02	0.53	1-4	.11	-.09	.41**	.06	.84	
6. Anger control-out	3.06	0.56	1-4	.10	-.13	.27**	.14*	.73**	.85

Notes. *p <. 05; **p <. 01; Means and SDs for PSP and ECP displayed here are derived from raw subscale scores; Cronbach's α are displayed on the diagonal.

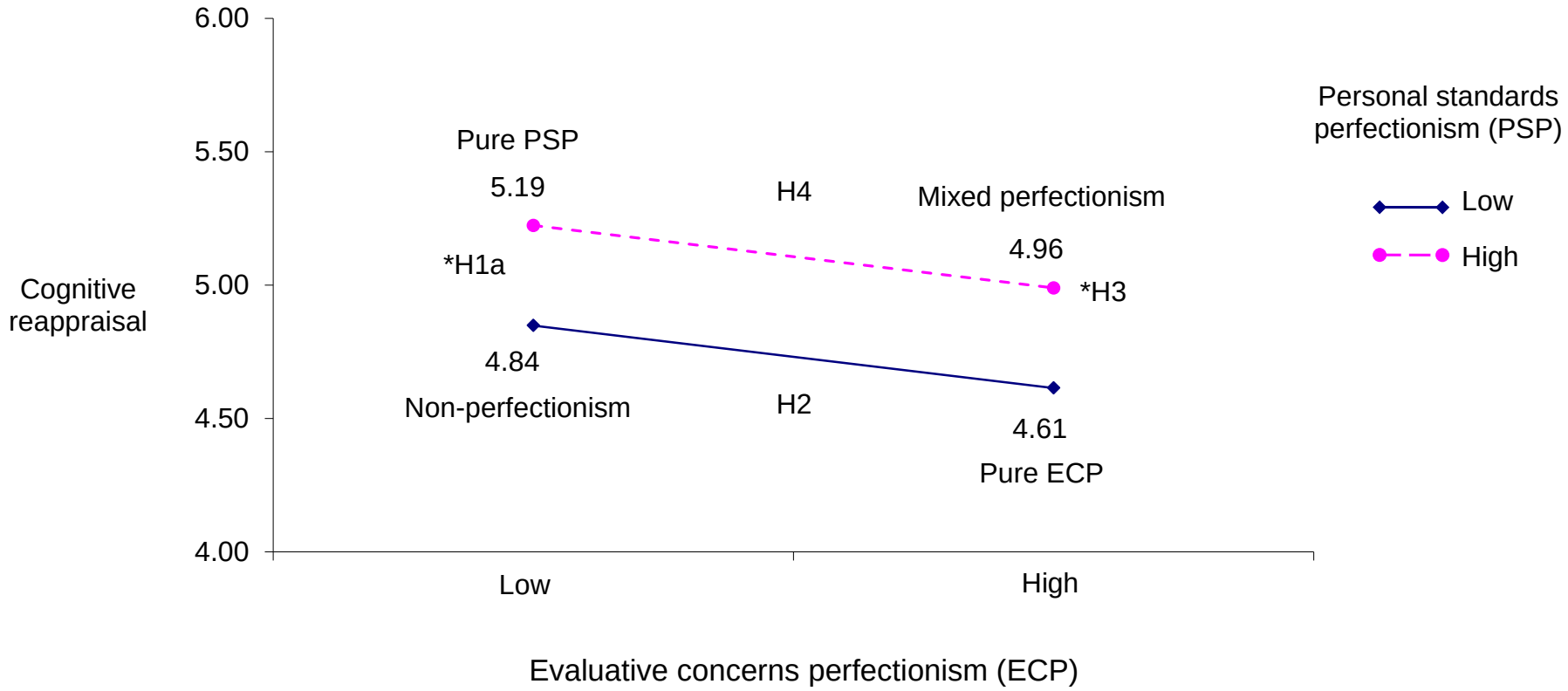
Table 2 – Final main and interaction models

					Personal standards perfectionism			Evaluative concerns perfectionism			Interaction term		
	F	*df*	R^2	ΔR^2	*β*	*B*	*SE*	*β*	*B*	*SE*	*β*	*B*	*SE*
Cognitive reappraisal													
Step 1	3.72*	(2, 224)	.03		.20**	0.11	0.04	-.07	-0.03	0.03			
Step 2	2.72*	(3, 223)	.03	.00	.20**	0.11	0.04	-.07	-0.03	0.03	-.06	-0.01	0.01
Expressive suppression													
Step 1	14.48**	(2, 224)	.11		.15*	0.10	0.05	.24**	0.09	0.03			
Step 2	11.08**	(3, 223)	.13	.02*	.15*	0.10	0.05	.24**	0.09	0.03	.12*	0.03	0.01
Anger control-in													
Step 1	4.37*	(2, 224)	.04		.20**	0.06	0.02	-.18*	-0.03	0.01			
Step 2	3.12*	(3, 223)	.04	.00	.20**	0.06	0.02	-.18*	-0.04	0.01	-.05	-0.01	0.01
Anger control-out													

Step 1	5.75**	(2, 224)	.05		.20**	0.06	0.02	-.23**	-0.05	0.02			
Step 2	4.01**	(3, 223)	.05	.00	.20**	0.06	0.02	-.23**	-0.05	0.02	.05	0.01	0.01

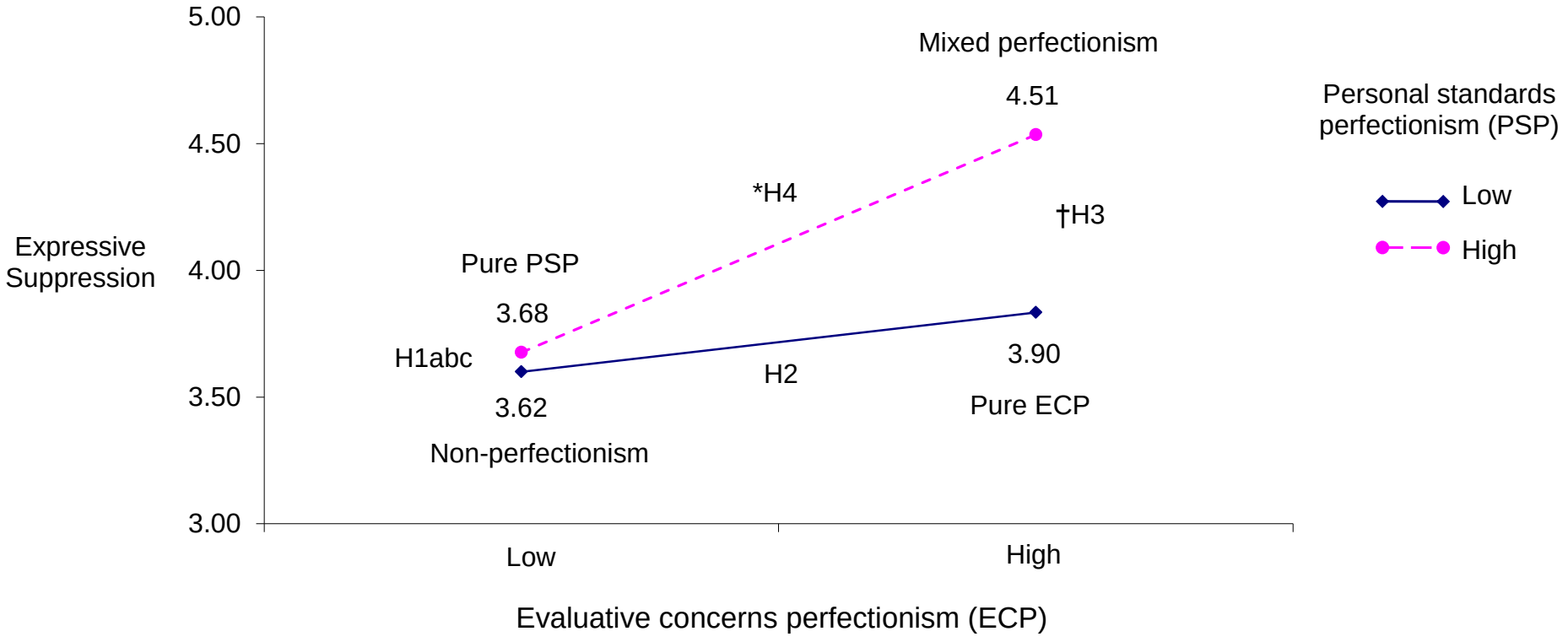
Notes. *$p < .05$; **$p <. 01$.

Figure 1 Predicted values of *cognitive reappraisal* across the four subtypes of perfectionism



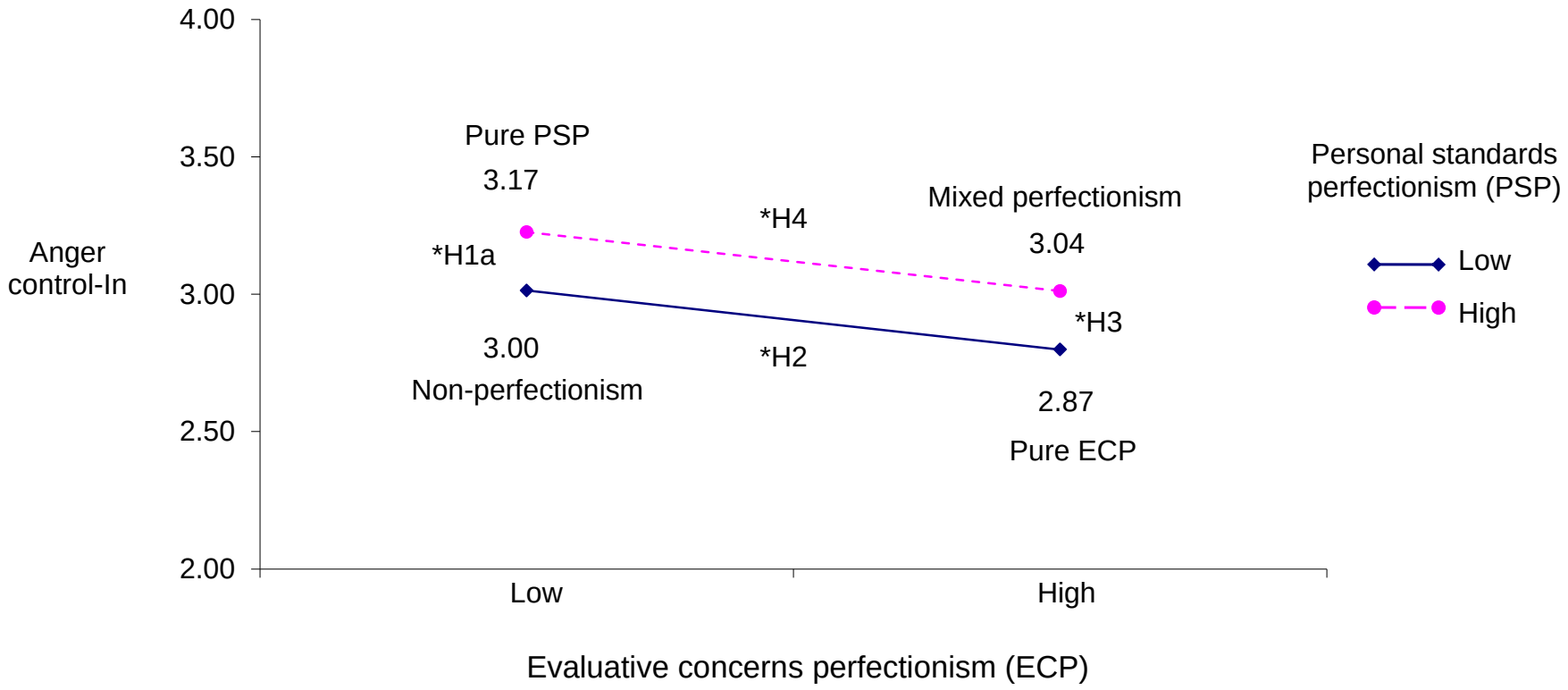
Notes. * denotes support for the corresponding hypothesis of the 2 x 2 model.

Figure 2 Predicted values of *expressive suppression* the four subtypes of perfectionism



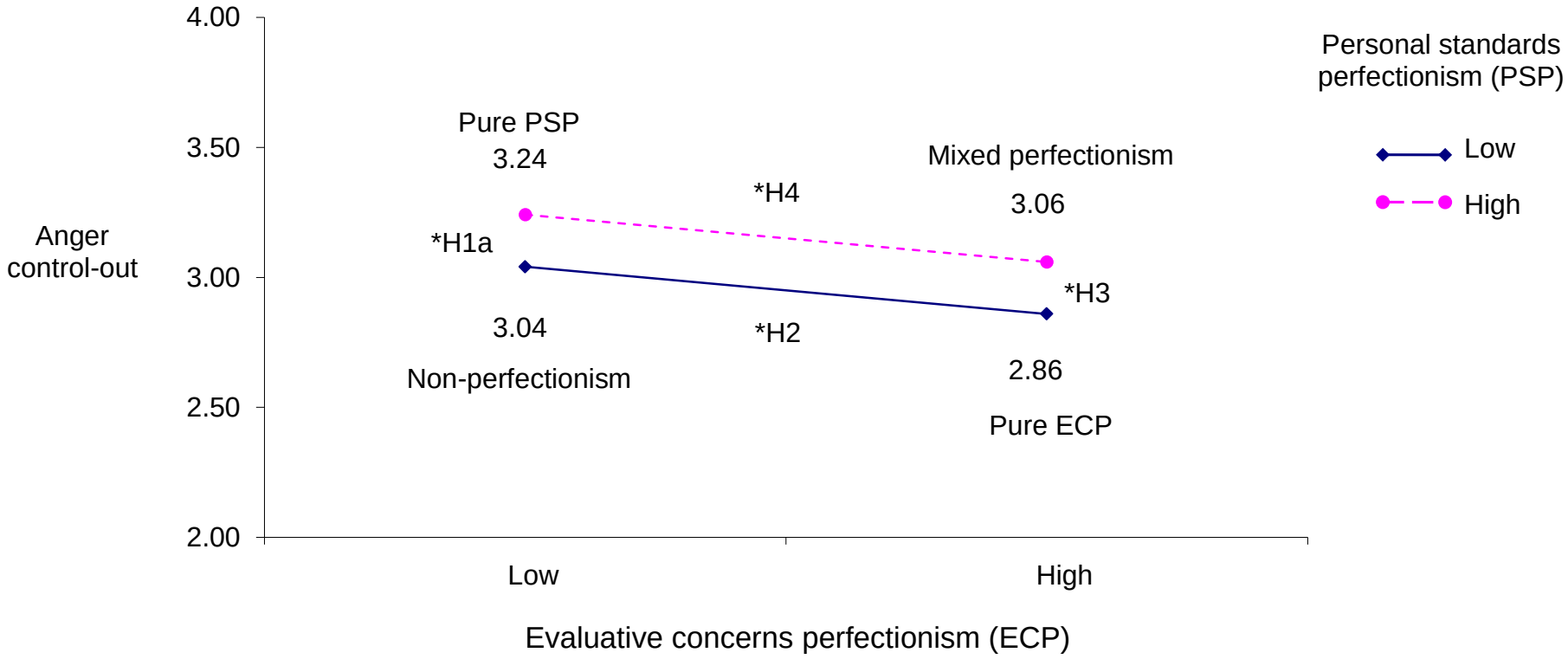
Notes. * denotes support and † denotes contradiction of the corresponding hypothesis of the 2 x 2 model.

Figure 3 Predicted values of *anger control-in* across the four subtypes of perfectionism



Notes. * denotes support for the corresponding hypothesis of the 2 x 2 model.

Figure 4 Predicted values of *anger control-out* across the four subtypes of perfectionism



Notes. * denotes support for the corresponding hypothesis of the 2 x 2 model.