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Team Perfectionism and Team Performance: A Prospective Study

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Abstract

Perfectionism is a personality characteristic that has been found to predict sports performance in athletes. To date, however, research has exclusively examined this relationship at an individual level (i.e., athletes' perfectionism predicting their personal performance). The current study extends this research to team sports by examining whether, when manifested at team level, perfectionism predicts team performance. A sample of 231 competitive rowers from 36 boats completed measures of self-oriented, team-oriented, and team-prescribed perfectionism prior to competing against one another in a 4-day rowing competition. Strong within-boat similarities in the levels of team members' team-oriented perfectionism supported the existence of collective team-oriented perfectionism at the boat level. Two-level latent growth curve modeling of day-by-day boat performance showed that team-oriented perfectionism positively predicted the position of the boat in mid-competition and the linear improvement in position. The findings suggest that imposing perfectionistic standards on team members may drive teams to greater levels of performance.

Keywords: perfectionism, team sports, performance, competition, multilevel modeling

Team Perfectionism and Team Performance: A Prospective Study

The performance of sports teams is known to be influenced by a range of factors, including the personality of the team members (Beauchamp, Jackson, & Lavallee, 2007). Perfectionism is a personality characteristic that is thought to be common in sport and influential in terms of athletic performance (Stoeber, 2011, 2012b). To date, however, research examining the relationships between perfectionism and athletic performance has exclusively focused on the perfectionism–performance relationship at an individual level (i.e., athletes' perfectionism predicting their personal performance). The current study extends this research by examining the perfectionism–performance relationship in sports at team level in a prospective manner. Specifically, it examines whether the level of perfectionism evident within a sports team has a positive or negative relationship with subsequent team performance in a 4-day competition.

Perfectionism in Sport

Broadly defined, perfectionism is an achievement-related personality characteristic that includes a combination of a commitment to exceedingly high standards and self-critical evaluative tendencies (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990). However, perfectionism has different aspects and is best conceptualized as a multidimensional personality trait or disposition (see Enns & Cox, 2002, for a review). Moreover, there are different forms of perfectionism and these have different characteristics.

Regarding multidimensional conceptualizations of perfectionism, one of the most influential and widely researched models is Hewitt and Flett's (1991) model of perfectionism. With the recognition that perfectionism has personal and social aspects, the model differentiates between three forms of perfectionism: self-oriented, other-oriented, and socially prescribed perfectionism. Self-oriented perfectionism is characterized by exacting personal standards and stringent self-evaluation. Other-oriented perfectionism sees these exacting standards and stringent evaluation directed outwards and imposed on others. Finally, socially prescribed perfectionism entails the perception that others have exacting standards and are stringent in their evaluation (see also Hewitt & Flett, 2004). Extensive research attests to the value of this model in understanding the different effects of perfectionism as independent predictors and as part of a hierarchical model of perfectionism in which self-oriented perfectionism and other-oriented perfectionism are constituents of perfectionistic standards[1] and socially prescribed perfectionism is a constituent of perfectionistic concerns (see Stoeber & Otto, 2006, for a review).

Perfectionism and Performance

Recent reviews (Stoeber, 2011, 2012b) of research examining the perfectionism–performance relationship across a number of achievement contexts (e.g., exams and grade point average at school and university, aptitude test performance, and performance in music competitions) concluded that perfectionistic standards and their constituents (e.g., self-oriented perfectionism) typically show small- to large-sized positive relationships with performance (cf. Cohen, 1992). In contrast, the picture for perfectionistic concerns and their constituents (e.g., socially prescribed perfectionism) was inconclusive showing mostly nonsignificant and occasionally small inverse relationships with performance. Drawing on extant research to explain these findings, Stoeber (2011, 2012b) argued that perfectionistic standards—when applied to oneself (self-oriented perfectionism)—appear to energize higher levels of effort and promote the use of goal setting and internal motivational regulation conducive to better performance (e.g., Bieling, Israeli, Smith, & Antony, 2003; Brown et al., 1999; Stoeber & Eismann, 2007). In contrast, any effect of perfectionistic concerns on performance was considered to be more distal and possibly indirect, for example, by means of perfectionistic concerns' associations with negative emotions and dysfunctional motivational orientations (e.g., Frost & Henderson, 1991; Hall, Kerr, & Mathews, 1998; Stoeber, Stoll, Salmi, & Tiikkaja, 2009). How perfectionistic standards, when applied to others (other-oriented perfectionism), affect others' performance has so far not been investigated.

Few studies have examined the perfectionism–performance relationship in sport (cf. Gotwals, Stoeber, Dunn, & Stoll, 2012). However, similar relationships to those in other achievement contexts have been observed. Specifically, perfectionistic standards and their constituents have been found to contribute to higher levels of athletic performance (typically small-to-moderate effect sizes) whereas perfectionistic concerns and their constituents have not shown any consistent relationships with athletic performance (Stoeber, 2011, 2012b). This pattern of findings is evident in both performance during training (Stoll, Lau, & Stoeber, 2008) and performance in competitions even when controlling for previous performance levels (Stoeber, Uphill, & Hotham, 2009). Only under conditions of (false) failure feedback in the laboratory have perfectionistic standards and concerns shown to contribute to performance difficulties in athletes (Anshel & Mansouri, 2005; Hill, Hall, Duda, & Appleton, 2011). In "real life" settings and in the absence of failure feedback, higher levels of perfectionistic standards seem to be more likely to aid rather than undermine sport performance (Stoeber, 2012b).

One notable absence from extant research in sport and other achievement contexts is the examination of the influence of perfectionism on team performance. Generally, research has tended to examine perfectionism in single units (e.g., individuals), with more recent examination of its influence in dyads (e.g., romantic couples; Stoeber, 2012a). However, as yet, there has been no examination of its influence in collectives (e.g., teams). For this, the conceptual meaning of perfectionism when transposed to team level must be considered. On this issue, Chen and colleagues (Chen & Gogus, 2008; Chen & Kanfer, 2006) have argued that motivational constructs and processes can retain similar conceptual meaning when generalized from individual to team level. The central distinction is that motivational constructs at team level are assumed to capture, to a greater degree, shared cognitions that arise from common experiences and interactions between team members over time. In this regards, team-level perfectionism is expected to have strong similarity among team members that reflect social interaction and homogeneous beliefs and expectations that pertain to perfectionism (e.g., a shared sense of the exacting standards and stringent evaluation operating within the team, and shared expectations that team members have of each other).

In support of this perspective, Chen and colleagues (Chen & Gogus, 2008; Chen & Kanfer, 2006) offered a number of examples of individual-level constructs that successfully translate to the team level. One prime example is efficacy (Bandura, 1997). At an individual level, efficacy captures an individual's belief in their own capabilities to produce a certain level of performance (self-efficacy) that at a team level assesses a team's shared belief in their conjoint capabilities (team efficacy). This team-level analogue has its own antecedents and unique relationships with external team-level outcomes (e.g., team efficacy increases and decreases when teams win or lose, whereas self-efficacy is unaffected; Feltz & Lirgg, 1998). Moreover, research utilizing multilevel modeling has shown that team efficacy has an influence on team performance that mirrors the positive impact of self-efficacy on personal performance (Gully, Incalcaterra, Joshi, & Beaubien, 2002). This illustrates how an individual-level construct can be understood at team level and provides a basis for exploring perfectionism at team level.

The precise nature and influence of team-level perfectionism on team performance can be understood within the classic input-process-output model of team behavior which posits that team member attributes are important individual-level inputs that determine team outputs such as performance (McGrath, 1964). This notion was recently expanded upon by LePine and colleagues (LePine, Buckman, Crawford, & Methot, 2011) who described a multilevel model in which team members' personality (operating at an individual level) impacts team performance (operating at team level). They argued that team members' personality manifests at team level through the team's personality composition, operationalized as the aggregated amount (i.e., mean) and/or variability (i.e., minimum, maximum, variance) of personality traits evident at team level. In describing the "stocks and configurations" of team members' individual attributes, a team's personality composition is thought to have a powerful influence over the team's functioning and performance via team-level processes, such as cohesion, communication, and conflict (LePine et al., 2011). In this regard, the model offers a clear distinction between the mechanisms that explain the perfectionism–performance relationship at the individual level (e.g., individual team members' attitudes and behaviors such as achievement motivation, goal setting, and effort expenditure) and those at the team level. Finally, meta-analytical evidence indicates that when team personality composition captures mean levels of traits that promote better personal performance, it also tends to predict better overall team performance (Bell, 2007; Prewett, Walvoord, Stilson, Rossi, & Brannick, 2009). Hence, it is conceivable that when manifested at team-level, perfectionism would influence team performance.

The Present Study

Against this background, the aim of the present study was to investigate how self-oriented, other-oriented, and socially prescribed perfectionism in athletes competing in team sports affected their team's performance. Adapting the three forms of perfectionism of Hewitt and Flett's (1991) model to the context of team performance, self-oriented perfectionism remains unchanged, but the two social forms of perfectionism change: other-oriented perfectionism becomes team-oriented perfectionism (other-oriented perfectionism directed at team members), and socially prescribed perfectionism becomes team-prescribed perfectionism (socially prescribed perfectionism coming from team members). Because previous literature examining perfectionism and performance suggests that perfectionistic standards and their constituents show positive relationships with performance and perfectionistic concerns and their constituents negative or no relationships with performance (Stoeber, 2011, 2012b), we expected self-oriented perfectionism and team-oriented perfectionism to show a positive relationship with team performance and team-prescribed perfectionism to show a negative relationship or no relationship. Else, because this was the first study to investigate the relationship between perfectionism and team performance (and individual-level variables not always manifest at team level), the study was largely exploratory.

Method

Participants and Procedure

A sample of 231 rowers (114 male, 117 female) competing in 36 boats in teams of nine (eight rowers and one coxswain) was recruited at the May Bumps 2011 in Cambridge, UK organized by the Cambridge University Combined Boat Clubs (CUCBC). From each boat, two to nine team members took part in the study (average cluster size m = 6.42). The mean age of rowers was 21.7 years (SD = 3.6; range = 18-41 years). Asked in how many competitions they had participated over the past year and on what level they were currently active in competitive rowing, rowers indicated an average of 4.1 competitions (SD = 3.4; range = 0-20 competitions; nine rowers did not indicate the number of competitions) with 193 (83.5%) indicating their level as “recreational,” 30 (13.0%) as “regional,” 3 (1.4%) as “national,” and 3 (1.4%) as “international” (two rowers did not indicate their level).

The study followed a prospective correlational design in which rowers’ perfectionism was measured before the four-day races started and team performance was measured over the four days of the races (see Figure 1). On Day 1 of the races, the first author and two research assistants approached boat captains who were preparing for their first race asking if they would agree to complete a short paper-and-pencil questionnaire on “personal standards and performance on competitive rowing." If the captain agreed, questionnaires were distributed to team members and the boat's name (e.g., Pembroke III) and division (men's or women's) were noted on the questionnaire. Participation was voluntary, and it was up to each individual team member to decide if they wanted to complete the questionnaire. In exchange for participation, all rowers who completed the questionnaire entered a raffle for a chance to win one of two cash prizes of £100 (~US $160).

Team performance data were collected when the CUCBC published the day-by-day results of all races on their website (CUCBC, 2012b). These results consisted of five ranking positions for each boat: the starting position determined by the outcome of the previous year's races, and the positions achieved at the end of each day. The study was approved by the CUCBC and the relevant ethics committee from the second author's university, and all procedures followed the code of ethics and conduct of the British Psychological Society (2009).

Race Details

Full details of the "Bumps" racing event are provided by the CUCBC (2012a). As the CUCBC describe, the Bumps are a form of racing that evolved on the river Cam in the 1820s allowing a large number of boats from different colleges to compete with one another on a stretch of river that is not wide or straight enough for conventional side-by-side racing. Because of the many boats participating, the race is divided into divisions. At the May Bumps 2011, there were 10 divisions (6 men's, 4 women's) each with 17 boats (except for the last men's and women's division which comprised 18 boats) meaning there were overall 172 boats racing.

Bumps races are typically organized as a series of races over several days, in case of the Cambridge May Bumps four days. The starting order of the first day is determined by the order the boats finished on the last day of the previous year's bumps, and then each day's race is determined by the previous day's results (CUCBC, 2012a).

The aim of the race is to “bump” the boat in front of starting order, and avoid being bumped by the boat behind. A bump is made when any form of physical contact between boats is made; alternatively the boat’s coxswain can raise their hand to acknowledge that the boat is being overtaken. The two boats that bumped retire from the race to the river bank allowing the other boats to continue racing. A boat that bumps another boat moves up one rank taking the bumped boat’s place in next day’s race. It is also possible for boats to move up several places if—after the two boats ahead of them have bumped and retired from the race—they catch up with and bump the boat that started three boats ahead of them (“over-bumping”). Moreover, any boat finishing on the top of their division can start at the bottom of the race of the next higher division, meaning that boats can move up (or down) divisions. Consequently, the rank order of boats in divisions in combination with the rank order of divisions creates a single rank order of boats across all divisions (for example, with each division comprising 17 boats, the first boat of Division 2 is ranked 18th and the second boat 19th, the first boat of Division 3 is ranked 35th and the second boat 36th, and so forth). Hence the divisions are merely to help organize the races and the sequence of boats in the races, but overall form a single division for each men’s and women’s competition (CUCBC, 2012a).

Measures

Perfectionism. To measure perfectionism, we used the 15-item short form of the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991; short form: Cox, Enns, & Clara, 2002) capturing self-oriented (5 items; e.g., “I am perfectionistic in setting my goals”), other-oriented (5 items; e.g., “I do not have very high standards for those around me,” reverse-scored), and socially-prescribed perfectionism (5 Items; e.g., “People expect nothing less than perfection from me”) and adapted it to the present context, as detailed below. We chose the short form to keep the questionnaire brief and take away as little time as possible from participants’ race preparation. Moreover, the short form has shown a better factorial validity than the original form (Cox et al., 2002) and has been used previously in sport settings (e.g., Gaudreau & Antl, 2008; Mallinson & Hill, 2011).

Consistent with research that indicates perfectionism can be measured in a domain-specific manner (e.g., Dunn, Craft, Causgrove Dunn, & Gotwals, 2011; McArdle, 2010; Stoeber & Stoeber, 2009) and in line with standard practice in this area (e.g., Cumming & Duda, 2012; Hill, 2013; Hill & Appleton, 2011), the scale was adapted to focus participants on sport participation. The first part of the instruction was changed to read: "Below are a number of statements regarding attitudes toward sport and sport performance. Please read each statement and decide to what degree this statement characterizes your attitudes toward competitive rowing" (with the italicized words bold-faced). Moreover, the stem "In competitive rowing, …" was printed before the item section to make sure that all athletes reported their perfectionism regarding competitive rowing (cf. Appleton, Hall, & Hill, 2010; Hill, Hall, Appleton, & Kozub, 2008; Mallinson & Hill, 2012). Consultations with competitive rowers before the study had indicated that, when referring to other members of the team, "team mates" was the preferred term. Consequently, all references to "others" in the items were changed to "my team mates" (e.g., team-oriented perfectionism: "I do not have very high standards for my team mates," reverse-scored; team-prescribed perfectionism: "My team mates expect nothing less than perfection from me"). Participants responded to all items on a scale from 1 (strongly disagree) to 7 (strongly agree). With Cronbach's alphas of .84 (self-oriented), .78 (team-oriented), and .83 (team-prescribed perfectionism), all scores showed satisfactory reliability (Nunnally & Bernstein, 1994).

Team performance. Because the primary objective of competing in the May Bumps is to improve the boat's position in the ranks maximizing the number of ranks a boat bumps up over the four days of racing, team performance was conceptualized as a growth process (i.e., change in the boat's ranking position throughout the Bumps races). Operationally, five ranking positions were available for each boat: the rank at the beginning of the race (determined by the final position achieved in the previous year's Bumps) and the rank at the end of each day's races. As with any rank orders, lower numbers indicate higher position in the competition and vice versa.

Because the boat ranks are specific to men's and women's competitions and cannot be directly compared to one another, we rescaled the original ranks to relative positions within the competitions. To compute the new, rescaled position for a men's boat, we subtracted the boat's rank from the middle rank of the whole men's competition (52) and divided it by the number of divisions above (and below) the middle rank (3): rescaled position = $(52–\text{rank}_m)/3$. With this, the best boat in the men's competition ($\text{rank}_m = 1$) obtained a score of 17 = 51/3, the middle ranking boat ($\text{rank}_m = 52$) a score of zero, and the worst boat ($\text{rank}_m = 103$) a score of –17 = –51/3. Similarly, for each women's boat, we subtracted the boat's rank from the middle rank of the whole women's competition (35) and divided it by the number of divisions above (and below) the middle rank (2): rescaled position = $(35–\text{rank}_w)/2$.With this, the best boat in the women's competition obtained a score of 17, the middle ranking boat a score of zero, and the worst boat a score of –17, exactly like in the men's competition. All day-by-day rank orders were rescaled in this manner to obtain the relative positions. Therefore, the rescaled scores reflect the boats relative positions within the respective competition, with higher scores indicating better performance and lower scores indicating worse performance.

Figure 1 (left panel) shows the observed performance trajectories of the 36 boats based on the rescaled positions. The starting positions for the boats participating in the present study ranged from –16.5 to 11 (M = –2.82), and the rescaled finishing positions ranged from –16 to 10 (M = –3.01). Thus, the boats participating in the present study were largely mid-ranking, with slight under-representation of top-ranking boats.

Preliminary Analyses

Because the N = 231 rowers were nested in k = 36 boats, the individual-level data (rowers' perfectionism scores) were not independent but formed a multilevel structure with two levels—rowers (team members = Level 1) and boats (teams = Level 2)—which was expected to create dependencies among the perfectionism scores from rowers in the same boat. To examine the degree of dependencies and quantify the proportion of the total variance due to differences between the boats, intraclass correlations (ICCs) were computed. In conjunction with the average "cluster size" (m = number of rowers per boat), ICCs provide an indication of the importance of the nesting effects when the so-called "design effect size" Deff is computed as $\text{Deff} = 1 + (m - 1) * \text{ICC}$. If Deff is ≥ 2, the nesting effect is important and needs to be modeled (B. O. Muthén & Satorra, 1995). Table 1 shows the ICCs for the three perfectionism scales with their corresponding Deffs. For self-oriented and team-prescribed perfectionism, the nesting effects were only small. By contrast, team-oriented perfectionism showed a nesting effect of Deff = 1.99 approaching the critical value of 2 indicative of important nesting effects that need to be modeled. Consequently, the influence of team-oriented perfectionism on team performance was the main focus of the primary analyses. Analyses of self-oriented and team-prescribed perfectionism are presented for exploratory and comparative purposes.

Results

Perfectionism

Table 1 shows the perfectionism scores' intercorrelations. Below the diagonal are the individual-level (Level 1) correlations controlling for the nesting effects. Above the diagonal are the team-level (Level 2) correlations. At both levels of analysis, self-oriented perfectionism correlated positively and significantly with team-oriented perfectionism and team-prescribed perfectionism. In contrast, the correlations between team-oriented and team-prescribed perfectionism were not significantly different from zero. Moreover, the correlations were small at the individual level, but large at the team level of analysis, indicating that boats with high average levels of self-oriented perfectionism also had high average levels of team-oriented and team-prescribed perfectionism.

Team Performance

Team performance was conceptualized as a trajectory of change in a boat's position throughout the Bumps races (with positions representing rescaled ranks; see Measures section). Figure 1 shows that individual boat trajectories could be characterized by their position (e.g., on Day 2 of the competition), and changes around that position, which for some boats are approximately linear and for some have distinct quadratic shapes. To model these conceptually distinct components of team performance (viz. mid-point performance and trajectories of improvement), three latent variables were introduced at Level 2 to describe the growth process for each boat: the intercept, the slope, and the quadratic slope (see Figure 2). The standard setup for growth curve modeling was used, whereby the time intervals between each day's competitions were set equal, and the time metric was centered at the middle time point (Day 2 of the competition).[2] With this, the intercept reflects the position in the middle of the competition (the intercept can be interpreted as team's mid-competition position) whereas the slope and the quadratic slope reflect the linear and the quadratic components of improvement in ranking position.

The growth curve model depicted in Figure 2 fitted the data well, with $\chi^2 = 8.43$ (df = 6, p = .21), CFI = .997, and RMSEA = .042. The estimated values of the growth parameters are presented in Table 2. The mean intercept of –2.86 reflects the boats' average position on Day 2, which was slightly lower than their mean position at the beginning (–2.82), and about 3 positions lower than the middle ranking boat within the respective competition (rank = 0). The small negative values of both slope and quadratic slope reflected a slight decrease of performance on average, although both values were not statistically different from zero. Figure 3 shows the average performance trajectory. There was, however, substantial and statistically significant variation around the average trajectory, particularly around the mean intercept. Figure 1 (right panel) shows the estimated trajectories for individual boats.

Perfectionism as Predictor of Team Performance

To investigate how team-level perfectionism affected team performance, we conducted multilevel growth curve regression modeling for each of the three dimensions of perfectionism. Figure 4 illustrates the multilevel model adopted for the analyses. At Level 1, the observed perfectionism scores varied freely between rowers. At Level 2, the boat-specific latent means were modeled for each type of perfectionism. The latent means represented average boat perfectionism that varied between boats; these were used as predictors of team performance. The reason for modeling the boat means as a latent variable (B. O. Muthén, 1994) rather than computing them by aggregating individual scores was that the former yields unbiased parameter estimates whereas the latter may result in biased estimates (Croon & van Veldhoven, 2007).

Finally, the latent growth parameters for each boat—the intercept, the slope and the quadratic slope—were regressed on the boat perfectionism latent means. Thus, we investigated the impact of collective perfectionism on both mid-competition level (intercept) and improvement (slope and quadratic slope) components of performance.

The two-level models depicted in Figure 2 were estimated for each of the three forms of perfectionism. Self-oriented, team-oriented, and team-prescribed perfectionism scores were standardized using the scores' mean and standard deviation from the whole sample (N = 231) prior to analyses to ease the interpretation of regression coefficients. All multilevel latent growth curve models were estimated in Mplus Version 7 (L. K. Muthén & Muthén, 1998-2012) using the maximum likelihood estimator with robust standard errors. The models for the three dimensions of perfectionism fitted the data well, with χ^2 ranging between 9.66 and 10.60 (df = 8), CFI between .997 and .998, and RMSEA between .030 and .038.

Table 3 provides estimates of the perfectionism–performance regressions for the three dimensions of perfectionism. Results showed that, whereas team-prescribed perfectionism had no significant relationship with team performance, self-oriented and team-oriented perfectionism had a significant positive relationship with team performance regarding both the boat's mid-competition position (the intercept) and the boat's linear improvement over the four races (the slope).

For self-oriented perfectionism, one standard deviation increase in team's mean perfectionism was associated with almost a 20-point increase in the boat's mid-competition position (measured in relative position points ranging from –17 to 17), and with a 0.66 increase in the boat's linear rate of improvement. Although these relationships were significant at the $p = .05$ level and large (standardized regression weights were .75 and .61 for the intercept and slope respectively), they should be treated with caution due to the small nesting effects for self-oriented perfectionism.

In contrast, team-oriented perfectionism had a more robust ($p < .01$) positive relationship with team performance. Specifically, one standard deviation increase in team's perfectionism was associated with almost a 10-point increase in the boat's mid-competition position, and with a 0.43 increase in the boat's rate of improvement. Showing standardized regression weights of .62 and .64 for the intercept and slope respectively, the effect was large indicating important boat-related nesting effects and large differences between boats. Teams with rowers expecting perfection of their team members outperformed teams with rowers not having such high expectations of their team members.

Discussion

The aim of the present study was to extend research in the area of perfectionism and athletic performance by examining whether the level of perfectionism evident within a team predicted team performance. Based on research that attests to the divergent relationships of perfectionistic standards and perfectionistic concerns with personal performance (Stoeber, 2011, 2012), it was hypothesized that self-oriented and team-oriented perfectionism (i.e., other-oriented perfectionism directed at team members) would show a positive relationship with team performance whereas team-prescribed perfectionism (i.e., socially prescribed perfectionism coming from team members) would show a negative or no relationship. The results indicated that only team-oriented perfectionism displayed substantial nesting effects and predicted better team performance (mid-competition position and linear improvement). Self-oriented perfectionism predicted better team performance (mid-competition position and linear improvement) but accounted for little variance between boats. Team-prescribed perfectionism neither predicted team performance nor accounted for a meaningful amount of variance between boats.

The study extends current understanding of the perfectionism–performance relationship in sports in two ways. First, it is the first study to suggest that the positive relationship between perfectionistic standards and sport performance may extend to team performance. Therefore, the level of perfectionistic standards evident among team members may represent an important individual-level input for teams when seeking to understand prospective team performance in sport (cf. Barrick, Stewart, Neubert, & Mount, 1998). Second, the findings suggest that not only self-oriented but also other-oriented perfectionistic standards have implications for performance. In the present study, the tendency to impose exacting standards and stringent evaluation on others was the main driving force behind enhanced team performance, not the tendency to impose such standards and evaluation on the self. The effect of personally endorsing perfectionistic standards on personal performance may therefore to be mirrored by the effect of expecting perfection from team members on team performance.

In light of the influence of team-oriented perfectionism on team performance, further consideration of the meaning of this dimension is warranted. In the current study, other-oriented perfectionism was modified to measure team-oriented perfectionism. Other-oriented perfectionism captures the tendency to expect unrealistic outcomes from others and evaluate others stringently and critically. In this case, “others” refers to generalised others, to those around the individual (e.g., colleagues), and to people they are close to (e.g., family members, friends). By contrast, for team-oriented perfectionism, “others” refers to a specific group with whom the athlete has a high level of co-dependency (viz. team mates). While imposing internally driven beliefs that others should meet the perfectionist standards one holds for them is likely to be maladaptive in terms of social relationships with people in general (cf. Stoeber, in press), this might not be the case in performance contexts where the aim is optimal performance and expectations may be shared amongst the group. In addition to highlighting conceptual differences between general other-oriented perfectionism and team-oriented perfectionism, this possibility also serves to highlight a potential boundary condition of the observed relationship with performance in the form of sports or tasks where high levels of co-dependency are evident (see Kelley et al., 2003).

Although self-oriented perfectionism was found to have a positive influence on team performance, there was large variance within boats, and little variance between boats to be explained, rendering the finding tentative and the relationship less robust for team-level performance. This may be because, as a distinctly personal (as opposed to interpersonal) dimension of perfectionism, self-oriented perfectionism is less dependent on team members’ experiences, attitudes, and behaviours and is therefore less likely to display the homogeneity that supports its existence in a collective sense. In this regard, it may be best considered as a distinctly configural (as opposed to shared) team property (cf. Kozlowski & Klein, 2000). The positive relationship with performance, however, provides an indication that further examination of self-oriented perfectionism in context of team performance is warranted and its influence may be understood via individual-level pathways (e.g., individual effort) rather than via team processes.

There is a less compelling case to consider team-prescribed perfectionism further because, in addition to explaining little variance between boats, it had no influence on team performance. This is consistent with research examining the perfectionism–performance relationship at the individual level where perfectionistic concerns and its constituents have been found to show inconsistent or no relationships with athletic performance (Stoeber, 2012b). However, it remains a potentially important component of team personality composition due to its distinctly interpersonal focus. Within romantic couples, for example, perceptions that partners expect perfection has an adverse influence on relationship satisfaction and martial adjustment (Habke, Hewitt, & Flett, 1999; Haring, Hewitt, & Flett, 2003; Stoeber, 2012a). These are relationships that have been observed both within each partner (e.g., one's own perceptions influencing one's own satisfaction) and between partners (e.g., one's own perceptions influencing one's partner's satisfaction). Consequently, it is possible that team-prescribed perfectionism may be influential in terms of group level processes, such as leadership, conflict, and cohesion, and may impact team performance indirectly via these processes.

Limitations and Future Studies

The present study had a number of limitations. First, as this was the first study to investigate team perfectionism and team performance, research is required that replicates and extends this study. In doing so, the observed relationships can be examined in other sports and scenarios (e.g., training performance), including scenarios that allow disaggregation of individual processes and individual performance from team processes and team performance which would allow to test the moderating role of team processes on individual-level effects (cf. Chow, Hepler, & Feltz, 2007). The influence of different operationalizations of team personality composition (e.g., minimum, maximum, and/or variance) might also be assessed as part of this research (cf. van Vianen & de Dreu, 2001). Second, in generalizing the present findings researchers must be mindful that the use of incomplete team data, where research participation is voluntary, can constitute biased sampling and influence parameter estimates (e.g., team-level means and dispersion among team mates of perfectionism scores; Hirschfeld, Cole, Bernerth, & Rizzuto, 2013). This is in contrast to handling of cases missing at random, which is one of the long-cited advantages of multilevel modelling (Hox, 2010). Multilevel models do not assume equal numbers of observations in groups, so boats with missing members pose no special problem and can remain in the analyses. Moreover, presence of cases from all boats increases the overall sample size and improves the power of statistical tests. The only assumption made is that data are missing at random (MAR). If this is the case, the maximum likelihood estimator ensures unbiased estimates.

Third, perfectionism was measured using Cox et al.'s (2002) short form of Hewitt and Flett's (1991) MPS. The short form provided the necessary brevity to make it practical to collect data while athletes were preparing for the competition (and has shown better factorial validity) but it does not capture the three forms of perfectionism in the breadth and depth as the original version. In addition, the other-oriented perfectionism subscale of the short form contains only reversed-scored items. Consequently, the observed influence of this dimension of perfectionism may indicate that teams whose members accept average performance from their team members show decreased performance compared to teams whose members have perfectionistic expectations of their team members (rather than the latter showing increased performance compared to the former). Therefore, future studies may profit from using the original MPS subscales if feasible. Finally, the present study assessed the influence of each dimension of perfectionism separately.[3] Future studies will need to examine the unique and interactive effects of perfectionism (see Gaudreau & Verner-Filion, 2012) and seek to identify what mechanisms explain the observed relationships (and also offer alternative causal pathways), with a particular focus on factors operating at the team level that are known to predict team performance such as collective efficacy and cohesion (e.g., Beauchamp et al., 2007).

Conclusions

Despite these limitations, the present findings have important implications for the understanding of the relationship between perfectionism and performance in sport. Research so far suggests that perfectionistic standards are typically positively associated with athletic performance, whereas perfectionistic concerns tend to be unrelated or inversely related to athletic performance (Stoeber, 2011, 2012b). The current study is the first to model the relationship between perfectionism and team performance, with findings suggesting that similar relationships may exist when assessing the performance of teams, as opposed to individuals. Whereas perceptions that team members expect perfection showed no relationship with team performance in the present study, personal perfectionistic standards and imposing perfectionistic standards on team members drove teams to greater levels of performance. This relationship was particularly robust for team-oriented perfectionism. Hence, in team sports, the combined expectation of team members that others in the team should perform to the highest possible standards appears to be a factor that deserves more attention when investigating how perfectionism affects team performance.

Footnotes

[1]It is noteworthy that whether other-oriented perfectionism (OOP) should be considered part of perfectionistic strivings is not wholly clear. On the one hand, there is factor analytical evidence that OOP loads on the factor representing perfectionistic strivings (e.g., Bieling, Israeli, & Antony, 2004; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Suddarth & Slaney, 2001). On the other hand, OOP appears a unique form of perfectionism that is conceptually distinct from other forms and has been found to be unrelated to personal outcomes (cf. Stoeber, in press). Consequently, other researchers have excluded OOP from two-factor models differentiating perfectionistic strivings and perfectionistic concerns (e.g., Cox et al., 2002; Dunkley, Zuroff, & Blankstein, 2003). To acknowledge the possibility that self-oriented perfectionism (SOP) represents perfectionistic strivings but OOP may not, in the current manuscript we have adopted the term "perfectionistic standards" (i.e., both appear to represent a commitment to perfectionistic standards: SOP for oneself and OOP for others).

[2]In the growth curve model, we set all the intercept paths to one, the slope paths to –2, –1, 0, 1 and 2, and the quadratic paths to 4, 1, 0, 1, and 4. Centering the slope paths on the middle time point rather than the starting time point is recommended with quadratic slopes to avoid spurious correlations between the slope and quadratic slope (B. O. Muthén, 2001).

[3]Because of the very high correlation (r = .92) between self-oriented and team-oriented perfectionism at Level 2, it was not possible to test the effects of all three forms of perfectionism simultaneously. Due to multicollinearity, the model including all three forms as predictors was not identified.

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Table 1

Measures of Nesting Effects for Perfectionism (Intraclass Correlation, ICC, and Design Effect Size, Deff) and correlations between dimensions of perfectionism

	Nesting Effects		Correlations		
Perfectionism	ICC	Deff	SOP	TOP	TPP
Self-oriented perfectionism (SOP)	.066	1.36		.92**	.80*
Team-oriented perfectionism (TOP)	.183	1.99	.29**		.67
Team-prescribed perfectionism (TPP)	.065	1.35	.27**	–.13	

Note. N = 231 rowers in k = 36 boats. Team-level correlations are displayed above the diagonal; rower-level correlations (controlling for the differences in boat means) below the diagonal.

$^{*}p < .05$. $^{**}p < .01$.

Table 2

Estimated Parameters for the Growth Curve Model of Team Performance (see Figure 3)

		Parameters		
		Intercept	Slope	Quadr. slope
Mean		–2.86* (1.17)	–0.05 (0.05)	–0.02 (0.02)
Variance		49.33** (8.88)	0.08** (0.01)	0.01** (0.00)
Covariance	Slope	0.42 (0.33)		
	Quadr. slope	0 (0.10)	0 (0.02)	

Note. The time metric was centered at the middle time point (Day 2 of the competition).
Quadr. slope = quadratic slope.
* $p < .05$. ** $p < .01$.

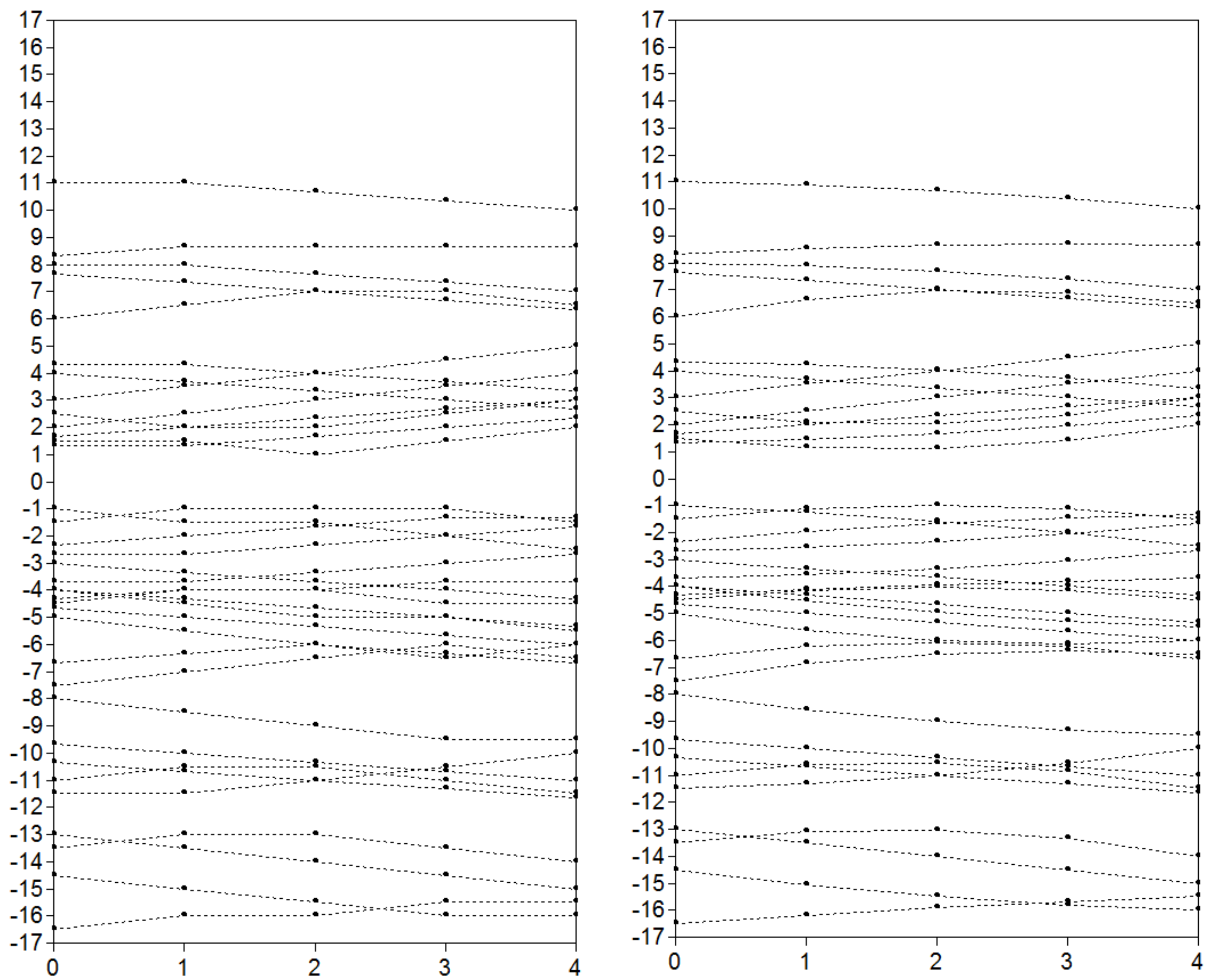
Table 3

Estimated Parameters for Multilevel Models with Team-Level Perfectionism Predicting the Growth Parameters (see Figure 4)

	Team-level parameters (Level 2)				
	Perfectionism		Coefficients b		
Model	Mean	Variance	Intercept	Slope	Quadr. slope
SOP	0.03 (0.08)	0.07^{*} (0.03)	19.87^{*} (10.06)	0.66^{*} (0.31)	–0.07 (0.10)
TOP	0.03 (0.10)	0.19^{*} (0.08)	9.97^{**} (3.18)	0.43^{**} (0.14)	0.00 (0.05)
TPP	0.02 (0.08)	0.07 (0.05)	15.27 (13.30)	0.31 (0.36)	–0.10 (0.09)
			Standardized coefficients β		
Model	Mean	Variance	Intercept	Slope	Quadr. slope
SOP	.11	1	.75	.61	–.20
TOP	.07	1	.62	.64	.02
TPP	.08	1	.57	.28	–.29

Note. N = 321 rowers in k = 36 boats. SOP = self-oriented perfectionism; TOP = team-oriented perfectionism; TPP = team-prescribed perfectionism. Standard errors are displayed in parentheses. Perfectionism scores at Level 1 were standardized across all rowers prior to analyses (mean = 1, variance = 1). Quadr. slope = quadratic slope.

$^{*}p < .05$. $^{**}p < .01$



Observed trajectories

Modeled trajectories

Figure 1. Boats' observed and modeled performance trajectories based on relative positions within the respective competition. Horizontal axis = day of the competition; vertical axis = relative positions within men's/women's competitions (see Method section for details).

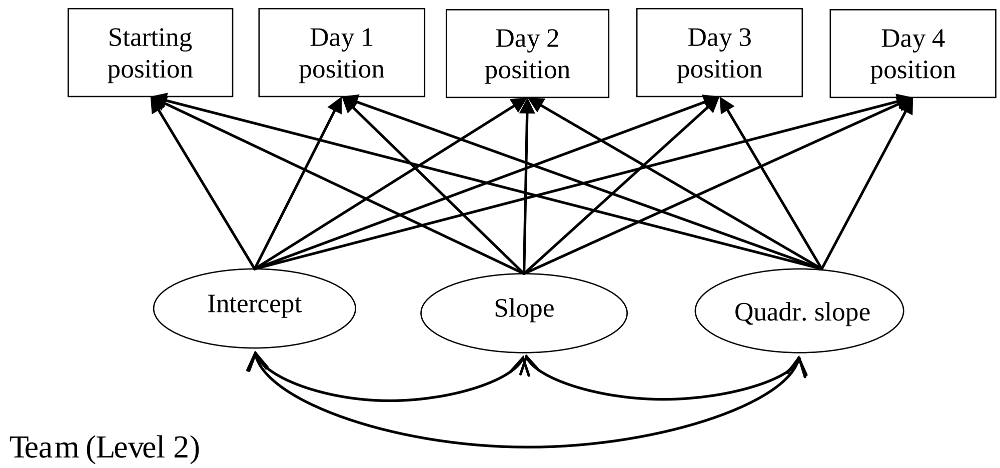


Figure 2. Growth curve model of team performance. Quadr. slope = quadratic slope.

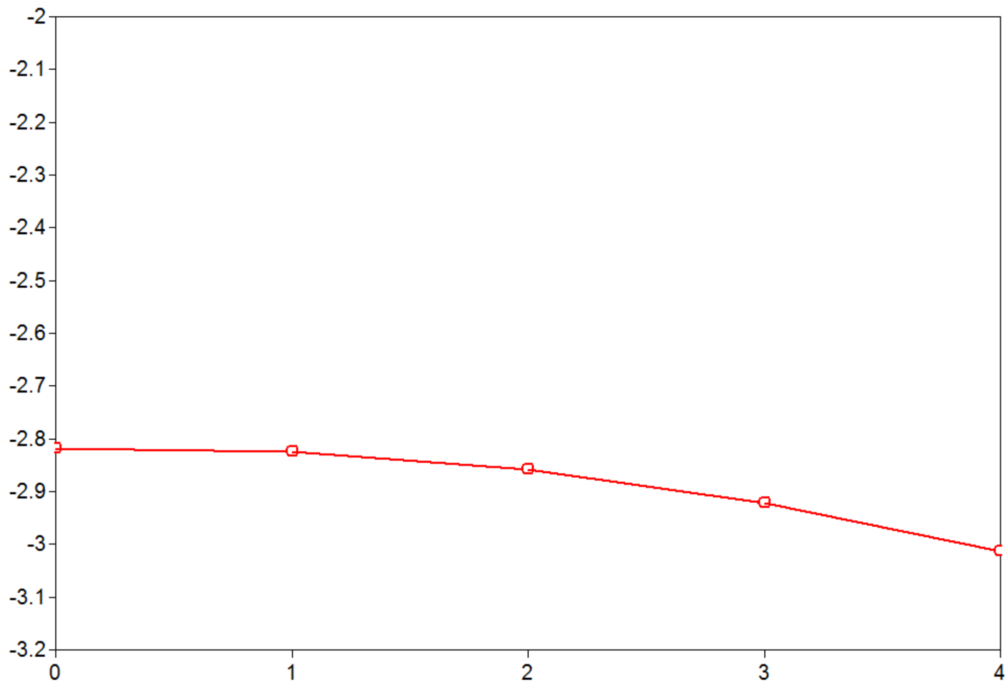


Figure 3. Boats' modeled average performance trajectory based on relative positions within the respective competition. Horizontal axis = day of the competition; vertical axis = relative positions within men's/women's competitions (see Method section for details).

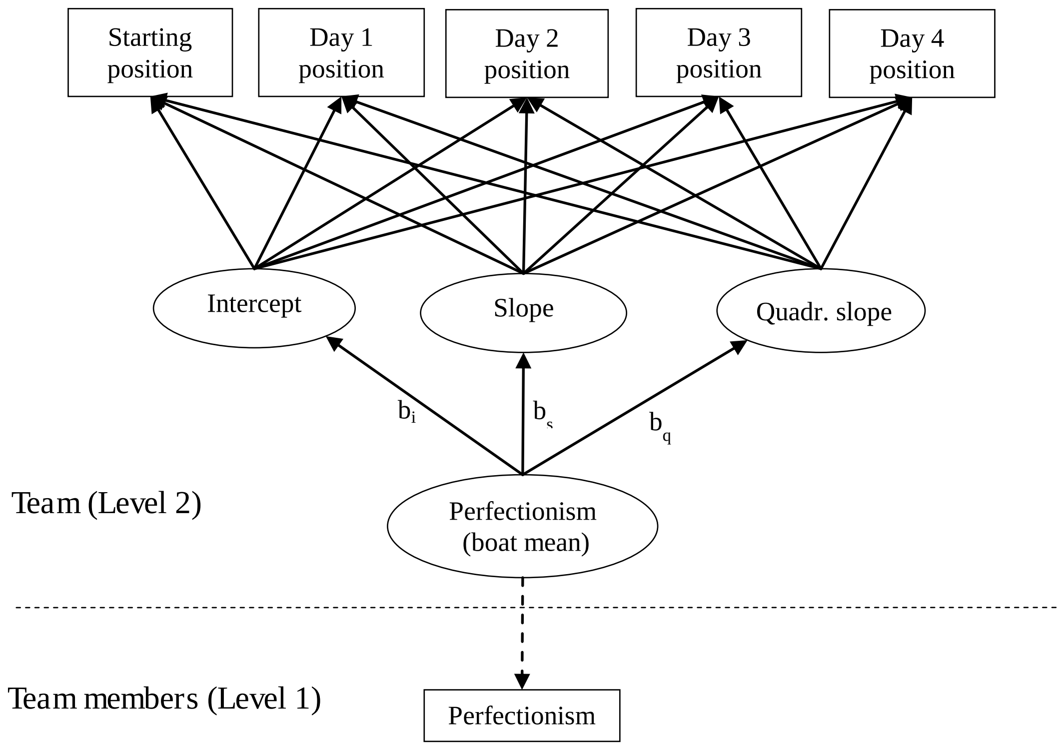


Figure 4. Multilevel latent growth model for predicting team performance from collective perfectionism. Quadr. slope = quadratic slope. Perfectionism = perfectionism of team members (Level 1). Perfectionism (boat mean) = latent variable representing the team's collective perfectionism (Level 2). Three separate models were tested with perfectionism = self-oriented perfectionism, team-oriented perfectionism, or team-prescribed perfectionism. b_i, b_s, and b_q = regression coefficients b for the intercept, slope, and quadratic slope (see Table 3). The figure omits residuals of all dependent variables, and correlated residuals for the intercept, the slope, and the quadratic slope.