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Relationships between perceived perfectionistic climate, perfectionism, resilience, fear of failure, and psychological wellbeing in youth athletes☆

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ABSTRACT

In sport, perfectionism, along with its correlates and consequences, has predominantly been examined as an individual personality trait. However, the experiences of pressure to be perfect in sport may not always be internally generated but may also emanate from perceptions of the behaviors of key social agents, like a coach. This latter idea is known as *perfectionistic climate*. In the present study, using a cross-sectional design, we examined for the first time how youth athletes' perceptions of a coach-created perfectionistic climate are associated with trait perfectionism (self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism) and outcomes indicative of the overall quality of their sport experience. A sample of 678 youth athletes (Mage = 14.88 years, SDage = 1.81 years) competing at county level and above completed a one-off survey including established measures of perceived coach-created perfectionistic climate, trait perfectionism, resilience, fear of failure, and psychological wellbeing. Structural equation modeling indicated that perceptions of coach-created perfectionistic climate were positively associated with all three dimensions of trait perfectionism and fear of failure and negatively associated with resilience and psychological wellbeing. These findings suggest perceptions of a coach-created perfectionistic climate are linked to less adaptive outcomes among youth athletes and underscore the relevance of such perceptions in understanding variations in the quality of sport experiences. Further, they highlight the potential importance of addressing perceptions of coach-created perfectionistic climate in youth sport settings.

1. Relationships between perceived perfectionistic climate, perfectionism, resilience, fear of failure, and psychological wellbeing in youth athletes

Engaging in sport provides numerous physical, psychological, and social benefits for children and teenagers (Howie et al., 2020). Despite these advantages, many youth athletes report experiencing a sporting climate (sometimes termed environment or atmosphere) characterized by excessive demands and unrealistic performance standards that appear perfectionistic in nature (Krane et al., 1997; Lavallee & Robinson, 2007). Coaches play a key role in shaping the sporting climate that youth athletes encounter (Alvarez et al., 2012). When athletes perceive coaches as emphasizing excessive demands and unrealistic performance standards, this may be associated with less positive experiences for these athletes, especially during training and competition. Understanding the environmental pressures that are linked with youth athletes' sporting experiences is therefore important for supporting both performance and wellbeing. This study aims to address this issue by examining, for the first time, how youth athletes' perceptions of a coach-created perfectionistic climate are associated with trait perfectionism and indicators of the quality of their sport experience, including resilience, fear of failure, and psychological wellbeing in sport. In doing so, we offer novel and important insights into the relevance of coaching practices for understanding youth athletes' sporting experiences and

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outcomes.

1.1. Perfectionism

1.1.1. Trait perspective

Perfectionism is a multidimensional personality trait broadly defined as a combination of excessively high personal standards and overly critical self-evaluation (Frost et al., 1990). Of the different models and measures that have been developed and used to examine perfectionism in sport, Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HF-MPS) is one of the most widely adopted (Madigan, 2023). In the HF-MPS, Hewitt and Flett outline three trait dimensions of perfectionism: (1) self-oriented perfectionism (SOP; i.e., setting excessively high personal standards and focusing disproportionately on poor personal performance), (2) other-oriented perfectionism (OOP; i.e., imposing perfectionistic standards on others), and socially prescribed perfectionism (SPP; i.e., believing that others hold excessively high standards and there is a requirement to meet such expectations). The HF-MPS has subsequently informed the development of a sport context-specific version, namely the Performance Perfectionism Scale for Sport (PPS-S), which emphasizes the perceived need for perfect athletic performance (Hill et al., 2016).

The three trait dimensions of perfectionism are differentially associated with a wide range of correlates and consequences in sport. Evidence shows that SOP has a mixed profile of associations with more and less adaptive coping strategies, motives, and aspects of well- and ill-being (for a recent review see Jowett et al., 2023, pp. 75–161). SPP is more straightforward as it has consistently been associated with less adaptive motives and aspects of ill-being (Jowett et al., 2023, pp. 75–161). Notably for our study, SPP appears to be more strongly associated with fear of failure than SOP (Conroy et al., 2007; Taylor et al., 2023). Comparatively, less is known about OOP, but it may also be problematic for athletes with associations reported for antisocial behaviors and athlete burnout (Grugan et al., 2020; Olsson et al., 2022). What remains less clear, however, is how pressure to be perfect emanating from perceptions of the behaviors of key social agents, like a coach, may relate to athletes' trait perfectionism and the overall quality of their sport experiences.

1.1.2. Perfectionistic climate

While previous research has examined broader motivational climates, such as those derived from Achievement Goal Theory (AGT; Nicholls, 1984) and Self-Determination Theory (SDT; Ryan & Deci, 2017), the construct of *perfectionistic climate* offers a distinct perspective on perceived pressures emanating from beyond the individual (Hill & Grugan, 2020). That is, perfectionistic climate concerns the degree to which the social environment is viewed as perfectionistic and is defined as "the informational cues and goal structures aligned with the view that performances must be perfect and less than perfect performances are unacceptable" (Hill & Grugan, 2020, p. 265). In this way, athletes may experience the consequences of perfectionism even without fully internalizing perfectionistic tendencies themselves (Hill & Grugan, 2020).

Grounded in existing models of perfectionism (Frost et al., 1990), developmental pathways (Flett et al., 2002; Hewitt et al., 2017), and motivational models emphasizing the sporting climate (i.e., AGT and SDT), Hill and Grugan (2020) outline five components that comprise perfectionistic climate: (1) expectation, (2) criticism, (3) control, (4) conditional regard, and (5) anxiousness. Collectively these components refer to the unrealistic *expectations* that key social agents demand of individuals to perform perfectly and the harsh *criticism* given if performance is viewed as imperfect. Further, the use of externally *controlling* strategies (e.g., punishment for minor or inconsequential mistakes) and internally controlling, *conditional regard* (e.g., offering support or approval only when performance is perfect), which are intended to enforce perfect performance. This enforcement is accompanied by heightened *anxiousness* and vigilance regarding making mistakes, as well as concern about the potential ramifications of others not performing perfectly (Grugan et al., 2023).

Based on the preceding, perfectionistic climate seemingly shares some conceptual similarities with established motivational climates. Both perfectionistic climate and AGT's *ego-involving* climate (see Duda, 1992) involve penalizing mistakes and valuing higher-performing individuals. Further, perfectionistic climate and SDT's *controlling* climate (see Bartholomew et al., 2010) involve coercive strategies, such as punishment and/or conditional approval. However, perfectionistic climate centers on (i) an unrelenting demand for perfection, with rigid, unrealistic expectations and (ii) persistent, unreasonable, and harsh criticism with respect to perceived imperfection (Grugan et al., 2023). Empirically, Grugan et al. (2021) have verified this distinctiveness. With samples of youth athletes, Grugan et al. developed and validated a 20-item instrument termed the Perfectionistic Climate Questionnaire-Sport (PCQ-S), demonstrating reliability at the five component and overall construct levels and discriminant validity when considered in context of perceptions of a disempowering climate (see Duda, 2013). Overall, these findings support the idea that perfectionistic climate likely captures a unique and exacting coaching atmosphere characterized by unrealistic perfectionistic expectations and harshness, which may not be fully represented by existing climate frameworks.

One study has subsequently adopted the PCQ-S and tested the concept of perfectionistic climate with elite university female basketball players. A nuanced pattern of associations was found, with perceptions of a coach-created perfectionistic climate positively associated with athletic performance via challenge appraisals and more adaptive coping strategies but negatively associated with athletic performance via threat appraisals and less adaptive coping strategies (Meng et al., 2024). Despite these advances, what remains unknown is the association between perfectionistic climate and key psychological correlates and outcomes in youth sport, such as resilience, fear of failure, and wellbeing.

1.2. Perfectionistic climate and youth athlete experiences

A perfectionistic climate may be perceived as emanating from any valued and important social agent. However, research to date has focused on the perceptions of a coach-created perfectionistic climate, given the central role of a coach in defining sport experiences (Grugan et al., 2021). In youth sport, athletes' experiences and their likelihood of continuation are often linked to the climate that a coach is perceived to create (e.g., Castillo-Jiménez et al., 2022; Moulds et al., 2023). Some evidence also suggests that coach pressure to be perfect is associated with the development of youth athletes' trait perfectionism and less adaptive sport experiences (Fleming et al., 2023; Gotwals, 2011; Madigan et al., 2019; Sagar & Stoeber, 2009). Consequently, perfectionistic climate offers a potentially valuable new lens for examining and extending our understanding of these issues. Here, we are specifically interested in how perfectionistic climate may relate directly to trait perfectionism and key indicators of the overall quality of youth athletes' sport experiences (i.e., resilience, fear of failure, and psychological wellbeing).

1.2.1. Perfectionistic climate and trait perfectionism

With respect to youth athletes' trait perfectionism, it is plausible that perceptions of a coach-created perfectionistic climate may be associated with all three dimensions. The developmental pathways that perfectionistic climate is grounded in posit that perfectionism may develop and be heightened in environments perceived as transmitting extreme expectations, conditional acceptance, and hypervigilance/overprotectiveness regarding mistakes (Appleton & Curran, 2023). Athletes who perceive a coach is emanating perfectionistic climate cues and behaviors, are likely to detect one or more of these pressures. Indeed, other coach-created climates marked by an intolerance of mistakes (i.e., an ego-involving climate) have been positively associated with SOP and,

to a greater extent, SPP (Lemyre et al., 2008). Less is known about OOP, but, given its features, perfectionistic climate may still relate to all dimensions.

1.2.2. Perfectionistic climate and resilience

Resilience is defined as "the role of mental processes and behavior in promoting personal assets and protecting an individual from the potential negative effect of stressors" (Fletcher & Sarkar, 2012, pp. 675, 2013, p.16), encapsulating both trait and process conceptualizations. The trait perspective refers to the mental processes and behaviors that enable individuals to adapt to challenges (Connor & Davidson, 2003), while the process perspective views resilience as a capacity that develops over time through person-environment interactions (Egeland et al., 1993). Within youth sport, resilience has been widely examined in relation to external environmental factors such as the motivational climate. Task-involving and autonomy-supportive climates have consistently been associated with higher levels of resilience among youth athletes (Ramirez-Granizo et al., 2020; Shanmugaratnam et al., 2025; Simon et al., 2024; White & Bennie, 2015; Zhang et al., 2025), reinforcing the view of youth sport as a valuable context for supporting resilience development (Sarkar & Fletcher, 2016). In contrast, controlling and autonomy-suppressive climates have been negatively associated with resilience (Simon et al., 2024). Given that a perfectionistic climate reflects athletes' perceptions of unrelenting performance expectations and intolerance of mistakes, it is reasonable to expect that perceptions of a perfectionistic climate may also be negatively associated with resilience among youth athletes. Examining this association may therefore provide important insight into how more extreme and aversive sport climates relate to young athletes' capacity to adapt to sport-related demands and adversity.

1.2.3. Perfectionistic climate and fear of failure

Fear of failure concerns the tendency to appraise threat in evaluative situations where failure is possible. Higher levels of fear of failure have consistently been associated with stress, anxiety, worry and a reduced long-term commitment to sport (Conroy et al., 2002; Sagar et al., 2007), underscoring the importance of identifying factors that may be related to fear of failure. Grugan et al. (2023) reviewed correlates of coach pressure to be perfect and reported positive associations with fear of failure. Given that perfectionistic climate similarly involves athletes' perceptions of coaches' unrelenting demands for perfection, we anticipate that perceptions of a perfectionistic climate may be positively associated with fear of failure among youth athletes. This expectation is somewhat further supported by motivational climate research showing that perceived ego-involving, controlling, and disempowering climates are positively associated with fear of failure in youth sport settings (Birr et al., 2024; Gómez-López et al., 2020; Moreno-Murcia et al., 2019; Valero-Valenzuela et al., 2024).

1.2.4. Perfectionistic climate and wellbeing

Psychological wellbeing in sport has been conceptualized as "a dynamic state of wellbeing in which athletes can realize their potential, see a purpose and meaning in sport and life, experience trusting personal relationships, cope with common life stressors and the specific stressors in elite sport, and are able to act autonomously according to their values" (Kuettel & Larsen, 2020, p. 253). This sport-specific definition reflects the unique psychological demands and environmental pressures experienced by athletes, particularly within high-performance settings. Again, identifying environmental factors that may be associated with an athlete's psychological wellbeing is an important area of inquiry. Grugan et al. (2023) found that coach pressure to be perfect was negatively associated with global self-esteem, a commonly used indicator of psychological wellbeing. In addition, a substantial body of research highlights the central role of motivational climate in shaping athletes' psychological wellbeing, with a disempowering climate consistently linked to indicators of ill-being, including burnout (academic and sport burnout) and less adaptive emotional states (Birr et al., 2023; Castillo-Jiménez et al., 2022; Gutiérrez-García et al., 2019; Harwood et al., 2015; Ino et al., 2020). As a perfectionistic climate similarly encapsulates more perceived aversive messaging and behaviors of key social agents, examining its association with psychological wellbeing may again offer valuable insight into how a potentially more extreme evaluative sporting climate relates to athletes' psychological experiences and functioning, particularly in higher-level sport settings where perfectionistic ideals are seemingly reinforced.

1.3. The present study

Building on the existing literature, the current study aimed to examine how perceptions of a coach-created perfectionistic climate are associated with trait perfectionism (SOP, OOP, and SPP) and sport experience outcomes (viz. resilience, fear of failure, and psychological wellbeing) in high-level youth athletes. Based on the preceding perfectionism theory and research on sport climate constructs derived from AGT and SDT), we hypothesized: (1) perfectionistic climate would be positively related to dimensions of trait perfectionism; (2) perfectionistic climate would be negatively related to resilience; (3) perfectionistic climate would be positively related to general fear of failure; and (4) perfectionistic climate would be negatively related to psychological wellbeing.

2. Method

2.1. Participants

Participants were 678 youth athletes aged between 12 and 18 years old (420 females, 255 males, 1 non-binary, 2 gender not reported; Mage = 14.88 years, SD = 1.81 years). Participants were recruited using convenience sampling. Participants identified with 19 different nationalities, including British (n = 523), American (n = 101), New Zealand (n = 15), French (n = 6), Republic of Ireland (n = 6) and Northern Irish (n = 5). Participants competed in 51 different individual and team sports (e.g., artistic gymnastics, cricket, swimming, athletics, hockey, and triathlon) and at various levels of competition (county = 122, regional = 165, National Age Group/Youth = 259, National Senior = 34, International Junior = 72, International Senior = 14 and other = 12, i.e., Premiership Rugby Union Academy). On average, participants had been competing for 6 years (SD = 2.89 years), had spent 3.22 years (SD = 2.44 years) with their main coach, and trained with their main coach for an average of 8.45 h per week (SD = 7.70 h). The reported gender of the participants' main coach was 470 males and 208 females.

2.2. Procedure

Following ethical approval from an institutional review board, gatekeepers of sports clubs (e.g., head of performance or head coach) were contacted via a convenience sampling approach. This contact included details of the study, an information sheet, and the weblink to the questionnaire. For those clubs interested in being involved, the information sheet and questionnaire weblink were then passed onto the parents/guardians of potential participants that fit the inclusion criteria (aged between 12 and 18 years and compete at county level or above). This level of youth athletes was chosen because such athletes typically spend prolonged time exposed to their coach's climate (i.e., they train and play extensively in a week), and the emphasis at this standard is often on competition and winning (Malina, 2009). Participants were also recruited via social media. Once parental/guardian consent had been obtained, athletes completed an assent form prior to completing the questionnaire. Although the target sample size was 200 participants based on SEM recommendations (e.g., Kline, 2005), data collection yielded 678 participants, all of whom were retained to improve the precision and stability of parameter estimates.

2.3. Measures

2.3.1. Perfectionistic climate

The PCQ-S (Grugan et al., 2021) assessed youth athletes' perceptions of a coach-created perfectionistic climate. The PCQ-S has five subscales, each with 4 items, which represent the five components of coach behavior central to perfectionistic climate: expectation (e.g., "the coach expects performances to be perfect at all times"), criticism (e.g., "the coach criticizes all mistakes no matter how small"), control (e.g., "the coach withholds rewards if performances are not perfect"), conditional regard (e.g., "the coach is friendlier when performances are perfect"), and anxiousness (e.g., "the coach is nervous that things will not go perfectly during performance"). Participants responded to each item using a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). If participants had more than one coach, they were instructed to think about the coach that they spend most of their time with. Grugan et al. (2021) provided supportive evidence for the validity and reliability of the PCQ-S, with the subscales demonstrating McDonald's Omega (ω) values ranging from .82 to .86, and differentiation from existing coach climate measures supporting discriminant validity.

2.3.2. Perfectionism

The Performance Perfectionism Scale for Sport (PPS-S; Hill et al., 2016) assessed youth athletes' trait perfectionism within their competitive sport. The PPS-S has three-subscales each with four items: self-oriented performance perfectionism (SOP; e.g., "I put pressure on myself to perform perfectly"), other-oriented performance perfectionism (OOP; e.g., "I am never satisfied with the performances of other"), and socially prescribed performance perfectionism (SPP; e.g., "people criticize me if I do not perform perfectly"). Participants rated the extent to which they agreed with each statement when taking part in sport on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Some of the statements referred to other people, whereby participants were asked to think about the people involved in their sport participation whose opinion they value. Hill et al. (2016) provided supportive evidence for the validity and reliability of the PPS-S, with all subscales demonstrating acceptable internal consistency (Cronbach's α) across two athlete samples: SOP (α = .83/.70), SPP (α = .75/.73), and OOP (α = .87/.79).

2.3.3. Resilience

The 10-item Connor-Davidson Resilience Scale (CD-RISC-10; Connor & Davidson, 2003) was used to assess youth athletes' resilience. This comprises 10 items (e.g., "I can deal with whatever comes my way"), with participants responding in relation to their sport experiences in the last month on a 0 (never) to 4 (almost always). These responses were summed to create an overall resilience score (range 0-40), with higher scores indicating higher levels of resilience. Connor and Davidson (2003) provided supportive evidence for the validity and reliability of the CD-RISC-10, with the full scale demonstrating high internal consistency (Cronbach's α = .89) and Gonzalez et al. (2016) provided further psychometric support for its use among sport performers.

2.3.4. Fear of failure

The Performance Failure Appraisal Inventory (PFAI; Conroy et al., 2002) assessed youth athletes' fear of failure. The PFAI consists of 25 items measuring beliefs associated with aversive consequences of failure on five subscales: Fears of Experiencing Shame and Embarrassment (seven items; e.g., "When I am failing, I worry about what others think about me''), Fears of Devaluing One's Self-Estimate (four items; e.g., ''When I am failing, I am afraid that I might not have enough talent.''), Fears of Having an Uncertain Future (four items; e.g., "When I am failing, it upsets my 'plan' for the future''), Fears of Important Others Losing Interest (five items; e.g., "When I am not succeeding, people are less interested in me''), and Fears of Upsetting Important Others (five items; e.g., "When I am failing, important others are not happy''). Participants were asked to think of how often they believe each statement was true in their sporting performances, on a scale ranging from do not believe at all (−2) to believe 100% of the time (+2). Item 12 was a reverse-scored item. Conroy et al. (2002) provided supportive evidence for the validity and reliability of the PFAI in college students, with a higher-order factor, created from the five subscale scores, demonstrating good internal consistency (Cronbach's α = .82). Sagar and Jowett (2010) have since extended support for the PFAI's psychometric properties in a diverse sport sample.

2.3.5. Psychological wellbeing

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007) was used to assess psychological wellbeing. The WEMWBS consists of 14 items that measure a broad conception of wellbeing including cognitive-evaluative dimensions, affective-emotional aspects, and psychological functioning (e.g., "I've been feeling relaxed"). Responses were made based on a Likert scale ranging from 1 (none of the time) to 5 (all of the time) and their experiences in their sport in the last month. These items were summed to create an overall score with higher values reflecting higher levels of psychological wellbeing (range 0-70). Clarke et al. (2011) provided supportive evidence for the validity and reliability of the WEMWBS, reporting high internal consistency (Cronbach's α = .87) among teenagers.

2.4. Data analysis

The data was analyzed through a multistage procedure. The first and second stages were carried out using IBM Statistics SPSS 28.0. The first stage involved initial screening for out-of-range values and checking assumptions of univariate and multivariate normality and reliability (Tabachnick & Fidell, 2014). Second, descriptive statistics and Pearson's bivariate correlations were calculated to allow for initial assessment of the five subscales of perfectionistic climate and their relationships with SOP, OOP, SOP, resilience, fear of failure and psychological wellbeing. The third and fourth stages involved examining a structural equation model (SEM) using Anderson and Gerbing's (1988) two-step approach. Firstly, confirmatory factor analysis (CFA) was used to test the measurement model before assessing the structural relationships. These analyses were carried out using Mplus 8 (Muthén & Muthén, 1998–2018-2018). Preliminary analyses indicated that all variables deviated from univariate normality (all $p < .01$, Shapiro-Wilk test), which can violate SEM assumptions. To address this, the Structural Equation Model was estimated using Maximum Likelihood estimation with Robust Standard Errors and a Mean-Adjusted Chi-Square (MLM) estimator in Mplus. This approach provides robust standard errors and a mean-adjusted chi-square statistic (Satorra & Bentler, 1994), ensuring valid inference despite the non-normal distribution of the data. The specification of the latent variables involved perfectionistic climate indicated by its five subscales, SOP, OOP, SPP, resilience, and psychological wellbeing as indicated by their respective scale items, and fear of failure indicated by its five subscales. The adequacy of the model fit was evaluated using multiple indices, including the chi-square statistic (χ^2), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). The CFI and TLI are incremental fit indices that compare the improvement of the target model over a baseline null model, while the RMSEA and SRMR are absolute fit indices that quantify the discrepancy between the observed and model-implied covariance matrices. Model fit was assessed in accordance with the guidelines proposed by Marsh, Hau, and Wen (2004), whereby acceptable fit is indicated by $\chi^2/df < 3$, CFI >.90, TLI >.90, SRMR <.10, and RMSEA <.10, while good fit is indicated by $\chi^2/df < 2$, CFI >.95, TLI >.95, SRMR <.06, and RMSEA <.06. Consistent with prevailing recommendations, less emphasis was placed on the chi-square statistic due to its sensitivity to sample size, which can result in the rejection of well-fitting models in

large samples.

3. Results

3.1. Preliminary analysis

The data was screened for univariate and multivariate outliers. Twenty-six were identified as potential outliers based on their z scores (± 3.29, $p < .001$) and Mahalanobis' distance $\chi^2_{(15)} = 37.697$ ($p < .001$); however, for all these participants the Cook's distance was less than 1. Aligned with previous research and established guidelines (Saward et al., 2024; Tabachnick & Fidell, 2014), we chose to retain these participants in the sample. The final step of this stage was to examine Cronbach's alpha and McDonald's omega coefficients. All subscales demonstrated satisfactory to excellent internal consistency with α and Ω values ranging from .75 to .95 (see Table 1).

3.2. Descriptive analyses and Pearson's bivariate correlations

The sample reported moderate-to-low levels of perceived coach-created perfectionistic climate. High levels of SOP, low levels of OOP, and moderate levels of SPP were also evident. Finally, there were moderate levels of resilience, fear of failure, and psychological well-being (see Table 1). Pearson's correlations (Table 1) showed that resilience and psychological wellbeing had small negative associations with expectation, criticism, control, conditional regard, and anxiousness. SOP and OOP had small positive associations with criticism, control, and anxiousness and medium positive associations with expectation and conditional regard. SPP had medium positive associations with control and anxiousness and large positive associations with expectation, criticism, and conditional regard. General fear of failure had medium positive associations with expectation, criticism, control and anxiousness and shared a large positive association with conditional regard.

3.3. Structural equation modeling

The CFA indicated that the measurement model provided acceptable fit to the data, χ^2 (968, N = 678) = 2895.07, $p < .001$, $\chi^2/df = 2.99$, CFI = .89, TLI = .88, SRMR = .05, RMSEA = .05, 90% CI [.05, .05]. The composite reliability (CR) for all factors was acceptable (CR > .70), We also examined the average variance extracted (AVE) for all variables, against a criteria value of .50. The values for SOP (AVE = .47), resilience (AVE = .38) and psychological wellbeing (AVE = .49) were all lower than this accepted standard, suggesting a problem with the convergent validity; all other variables indicated acceptable values of > .05. For SOP and psychological wellbeing, we chose to proceed given the AVE was above .40 and the CR values were above .60 indicating acceptable convergent validity (Fornell & Larcker, 1981). Given the comparably lower value for resilience, we examined the individual factor loadings which revealed low factor loading from one item ("I try to see the humorous side of things when I am faced with problems"). Removing this item improved the AVE to .41, as such we proceeded with the structural equation modeling without this item. Structural equation modeling indicated that the hypothesized model also provided acceptable fit to the data, χ^2 (924, N = 678) = 2495.89, $p < .001$, $\chi^2/df = 2.70$, CFI = .90, TLI = .89, SRMR = .05, RMSEA = .05, 90% CI [.05, .05]. The standardized path coefficients shown in Fig. 1 indicated significant direct positive paths from perfectionistic climate to all dimensions of trait perfectionism (SOP $b = .36$, $p < .001$; OOP $b = .36$, $p < .001$; SPP $b = .71$, $p < .001$) as well as general fear of failure ($b = .57$, $p < .001$). These findings indicate that all dimensions of trait perfectionism and general fear of failure were higher when the climate was perceived as more perfectionistic, supporting hypotheses one and three. The standardized path coefficients also indicated significant direct negative paths from perfectionistic climate to resilience ($b = -.24$, $p < .001$) and psychological wellbeing ($b = -.29$, $p < .001$), indicating that resilience and psychological wellbeing were lower when the climate was perceived as more perfectionistic, thereby supporting hypotheses two and four.

4. Discussion

The aim of the present study was to provide the first examination of how perceptions of a coach-created perfectionistic climate are associated with trait perfectionism (SOP, OOP, and SPP) and sport experience outcomes (viz. resilience, fear of failure, and psychological wellbeing) in high-level youth athletes. In support of our hypotheses, for the first time, perfectionistic climate was shown to positively relate to youth athletes' trait perfectionism and fear of failure in sport and negatively relate to their resilience and psychological wellbeing in sport.

4.1. Perfectionistic climate and trait perfectionism

It was hypothesized (Hypothesis 1) that perceptions of a perfectionistic climate would be positively related to trait perfectionism (SOP, OOP, and SPP). Supporting this hypothesis, positive associations were found between perfectionistic climate and all dimensions of perfectionism (SOP, OOP, and SPP). Given the theoretical grounding of perfectionistic climate, this finding is unsurprising and consistent with the notion that higher levels of perfectionism tend to co-occur with environments where coaches are perceived as unrealistic in their demands, impossible to please, highly critical, intolerant of mistakes, and extremely anxious/worried about anything other than perfect performance (Grugan et al., 2023). The findings also align with research suggesting that perceived coach-created controlling and punitive climates are associated with athletes' perfectionistic tendencies (Hill et al., 2018). In our study, perfectionistic climate showed a stronger association with SPP than SOP or OOP. This pattern is partly consistent with previous research showing that perfectionistic strivings, which can be indicated by SOP, have small-to-medium positive associations with an ego-involving coach climate, whereas perfectionistic concerns, which

Table 1
Bivariate correlations, descriptive statistics and reliability estimates.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	*M*	*SD*	Scale	α	w
1. Expectation											2.33	1.03	1-5	.91	.91
2. Criticism	.67**										2.53	1.03	1-5	.86	.86
3. Control	.68**	.73**									1.84	.82	1-5	.84	.84
4. CR	.71**	.67**	.65**								2.73	1.10	1-5	.89	.89
5. Anxiousness	.63**	.61**	.57**	.69**							2.66	.97	1-5	.86	.86
6. SOP	.31**	.24**	.18**	.32**	.26**						5.34	1.15	1-7	.75	.75
7. OOP	.33**	.30**	.27**	.32**	.24**	.27**					2.31	1.17	1-7	.83	.84
8. SPP	.57**	.53**	.48**	.54**	.48**	.45**	.38**				3.58	1.42	1-7	.84	.84
9. Resilience	−.17**	−.12**	−.17*	−.22**	−.16**	−.22**	−.05	−.22**			25.97	6.71	0-4	.85	.85
10. PWB	−.21**	−.23**	−.25**	−.28**	−.20**	−.30**	−.08	−.36**	.59**		48.59	10.38	1-5	.93	.93
11. GFoF	.45**	.42**	.39**	.54**	.44**	.52**	.27**	.60**	−.43**	−.57**	−.26	1.07	-2-+2	.95	.95

Note. **$p < .01$; CR = Conditional Regard; SOP = Self-oriented perfectionism; OOP = Other-oriented perfectionism; SPP = Socially prescribed perfectionism; PWB = Psychological wellbeing; GFoF = General fear of failure.

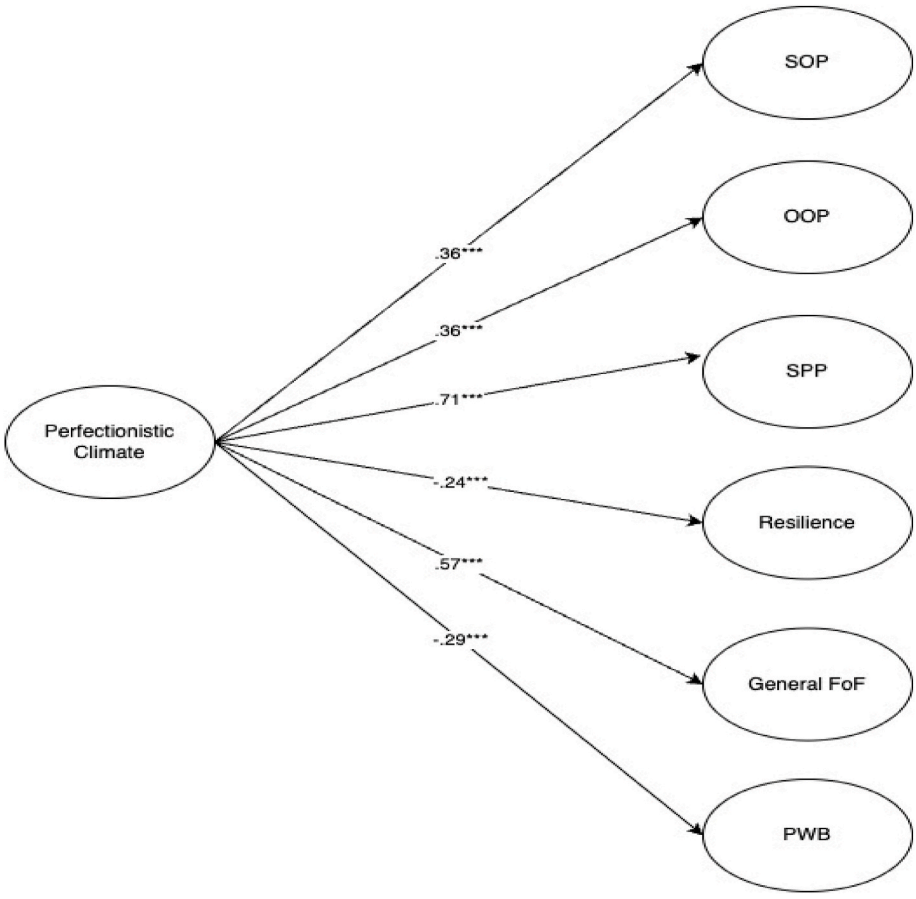

Fig. 1. Structural equation model: The associations between perceived perfectionistic climate, trait perfectionism dimensions, resilience, general FoF and PWB. *Note.* SOP = Self-Oriented Perfectionism; OOP = Other-Oriented Perfectionism; SPP = Socially Prescribed Perfectionism; General FoF = General Fear of Failure; PWB = Psychological Wellbeing. All pathways are standardized, ***$p < .001$.

can be indicated by SPP, show medium-to-large positive associations (Hill et al., 2018). These findings align with the conceptualization of SPP as the perception that others impose perfectionistic demands, which corresponds more closely with perceptions of a perfectionistic coaching climate.

4.2. Perfectionistic climate and resilience in sport

Results also supported Hypothesis 2, showing that perfectionistic climate was negatively related to resilience. This novel finding is the first in youth sport to illustrate the direct association between a coach-created perfectionistic climate and resilience. This finding sits nicely alongside recent work in sport which found a negative association between a controlling coaching style and resilience (Simon et al., 2024). Resilience in elite and super elite athletes has been linked to the combination of experiencing early critical negative life events and significant positive sport-related events (Güllich et al., 2019; Hardy et al., 2017). Hardy et al. (2017) highlighted the importance of significant sporting others, such as a coach, in providing praise, protection, and self-esteem, indicating that climates fostering personal growth and safety are associated with higher resilience in youth athletes. In contrast, youth athletes perceiving a perfectionistic climate, which is characterized by harsh and unrealistic demands, showed lower resilience in the present study.

4.3. Perfectionistic climate and general fear of failure in sport

Support was also found for Hypothesis 3, with perfectionistic climate positively associated with general fear of failure. The present study's findings mirror prior trait perfectionism research (Conroy et al., 2007; Taylor et al., 2023) as well as perceived coach perfectionistic pressure research (Gucciardi et al., 2012; Sagar & Stoeber, 2009). As anticipated, the findings align with the conceptualization that perceptions of a perfectionistic climate are likely to be associated with higher levels of concern about mistakes and negative social evaluation (Grugan et al., 2023). They also extend previous evidence indicating that youth athletes who perceive coaches as setting unrealistic expectations or using pressure, threats, and punishment in pursuit of perfection, report higher fear of failure and may experience a lower-quality sport experience. Furthermore, because fear of failure has been linked to sport dropout (Sager et al., 2007), a valuable avenue for future research could be to examine the associations among coach-created perfectionistic climate, fear of failure, and dropout in youth sport.

4.4. Perfectionistic climate and psychological wellbeing in sport

Supporting Hypothesis 4, perfectionistic climate was negatively associated with psychological wellbeing. This study is therefore also the first to illustrate a direct association between coach-created perfectionistic climate and psychological wellbeing in youth sport. This finding again aligns with previous trait perfectionism research, particularly SPP (Hill et al., 2018), and studies involving perceived perfectionistic pressure (Gotwals & Dunn, 2009), which suggests that the belief that performances must be perfect, and less than perfect performances are unacceptable, is associated with lower psychological wellbeing. However, previous research in trait perfectionism and perfectionistic coach pressure primarily explored indicators of psychological wellbeing (e.g., subjective vitality, self-esteem, enjoyment, and

anxiety), whereas the present study examined general psychological wellbeing in sport. Therefore, the findings seem to suggest that perceptions of a coach-created perfectionistic climate are directly associated with lower overall psychological wellbeing in youth athletes, rather than only through individual indicators of wellbeing.

4.5. Practical implications

The findings of the present study offer several practical implications for coaching practice and coach education. First, coaches are encouraged to critically reflect on the expectations and evaluative standards they communicate to athletes. Specifically, coaches would likely be encouraged to hold realistic, rather than perfectionistic, performance expectations and minimize an exclusive emphasis on error-free performance. In line with this, coaches could implement strategies that normalize mistakes as an inherent part of skill development and highlight positive aspects of performance, regardless of whether perfection is achieved (Duda et al., 2024). In practice, this may involve explicitly reinforcing effort, persistence, and learning progress during training and competition, as well as responding to errors with constructive, process-oriented feedback rather than criticism (Harwood et al., 2015). Framing success in terms of personal improvement and mastery, rather than normative comparison, aligns with recommendations from the motivational climate literature and has been associated with higher levels of wellbeing (Cronin & Allen, 2015). Emphasizing process-focused feedback and encouraging reflective learning following errors may be particularly important for promoting resilience and long-term engagement.

Second, the findings highlight the importance of integrating education on perfectionistic climates into coach development programs. Coach education initiatives should provide clear guidance on how certain coaching behaviors (e.g., excessive criticism, conditional approval, or unrealistic performance standards) may be perceived by athletes as pressuring them to be perfect. In particular, coaches should be encouraged to avoid employing externally controlling strategies that place pressure on athletes to perform perfectly (e.g., employment of punishment for minor or inconsequential mistakes), which aligns with research on coach autonomy support, the satisfaction of psychological needs, and optimal functioning in sport (Adie et al., 2008). Accordingly, coach education programs should actively promote autonomy-supportive behaviors, such as offering meaningful choice, acknowledging athletes' perspectives, and providing clear rationales for training tasks.

Finally, coaches may benefit from implementing structured practices that promote adaptive responses to mistakes and setbacks. For example, incorporating guided reflection following errors, using debrief sessions that focus on learning points, and embedding resilience-building strategies within training environments may help athletes reinterpret mistakes as opportunities for growth. This includes normalizing mistakes with an explicit focus on learning opportunities, rather than fostering worry or vigilance around athletes not performing perfectly. Such practices are consistent with broader frameworks emphasizing the development of adaptive responses to challenge and resilience in sport (Fletcher & Sarkar, 2016; Sarkar & Page, 2022). Collectively, these strategies may contribute to the development of more supportive performance environments that facilitate psychological wellbeing, resilience, and sustained sport participation.

4.6. Strengths, limitations and future research

A strength of the present study was the large sample size, which helps to improve representativeness, reduce the margin of error, and decrease the likelihood of sampling bias. Another key strength is the diversity of the sample, which included athletes from a wide range of sports, nationalities, and competitive levels. This diversity helps enhance confidence that the observed associations are not restricted to a single sport or performance context. While subgroup comparisons were not central to our research question, we did undertake additional robustness checks, where appropriate. These indicated that including gender as a covariate did not alter model fit or structural pathways.

Despite these strengths, the current study had several limitations that ought to be considered. First, the exclusive reliance on self-report measures may introduce biases such as social desirability or response consistency effects. Using only self-report data also increases the risk of common method variance and common method bias, potentially inflating the observed associations between variables. As such, future research would benefit from combining informant reports and observational assessments of coach behavior to reduce these issues. For example, Smith et al. (2015) developed the Multidimensional Motivational Climate Observation System within motivational climate research and a similar tool to assess the observed perfectionistic climate would likely enhance the literature and strengthen future research. Second, the cross-sectional design of the study captures data at a single point in time and therefore provides only a "snapshot" of the relationships among perfectionistic climate, resilience, fear of failure, and psychological wellbeing (Hill et al., 2018). Such designs prevent conclusions about the temporal or causal nature of these associations and cannot capture the dynamic, context-dependent, and more subjective ways in which perfectionistic climates are perceived and experienced. Consequently, while the study identifies meaningful associations among these variables, it cannot determine how perceptions of perfectionistic climate may influence these psychological outcomes over time. Longitudinal studies would help clarify how perceptions of a coach-created perfectionistic climate relate to the quality of youth athletes' experiences over time.

Thirdly, the study is limited by potential sampling bias. The sample consisted exclusively of youth athletes competing at the county level and above, which may limit the generalizability of the findings to athletes at lower competitive levels, recreational participants, or youth outside organized sports. Future research should aim to include participants from a wider range of competitive levels to enhance the external validity of the findings. Additionally, the sample comprised participants aged 12–18 years, a developmental period characterized by considerable psychological change. Although psychological development can vary across adolescence, age was not included as a covariate because the primary aim was to examine relationships among the key variables. Future research could examine whether these relationships differ across stages of adolescence. Finally, although the current study examined and showed cross-sectional associations between perfectionistic climate and perfectionism (SOP, OOP and SPP), resilience, general fear of failure, and psychological wellbeing, future research may also benefit from adopting qualitative approaches to explore youth athlete's perceptions from their own perspective (e.g., Mallinson-Howard et al., 2018). Flett and Hewitt (2024) have emphasized the importance of person-focused, rather than variable-focused, initiatives in future perfectionism research.

5. Conclusion

The present study is the first to examine associations between coach-created perfectionistic climate and key psychological variables in youth athletes, including trait perfectionism, resilience, fear of failure, and psychological wellbeing. The findings indicate that perceptions of a perfectionistic climate are negatively associated with more positive aspects of youth athletes' development and experiences in sport. Conversely, they are positively associated with less positive aspects of youth athletes' development and experiences in sport. The findings of this study highlight the importance of the social environment, as perceived to be created by coaches in youth sport, in shaping athletes' psychological functioning and outcomes.

CRediT authorship contribution statement

Emily J. Dargue-Fox: Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Conceptualization. **Sarah H. Mallinson-Howard:** Writing – review & editing, Methodology, Formal analysis, Conceptualization. **Laura C. Healy:** Writing – review & editing, Formal analysis. **Julie P. Johnston:** Writing – review & editing, Methodology, Conceptualization. **Mustafa Sarkar:** Writing – review & editing, Methodology, Conceptualization.

Declaration of competing interest

The author is an Editorial Board Member/Editor-in-Chief/Associate Editor/Guest Editor for this journal and was not involved in the editorial review or the decision to publish this article.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Fourth author is on the PSE Editorial Board. Authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data in an anoynimized form will be made available on request.

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