Temporal associations between psychological climate and coach-rated team performance in sport

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ABSTRACT

This study provides the first empirical test of the Practice Environment Model's (PEM) proposition that athletes' psychological climate perceptions are temporally related to subsequent team functioning. We examined whether daily psychological climate appraisals, collected via high-frequency digital monitoring, were associated with coach-rated team performance, and whether they offered added value beyond traditional perceived wellness assessments. Using the MIMIR platform, daily data were collected from 48 NCAA Division II athletes across men's soccer, women's soccer, and women's tennis teams. A time-lagged correlational design assessed whether psychological climate or perceived wellness ratings were linked to coach-rated performance on subsequent days. Results showed that psychological climate was significantly associated with coach ratings in several contexts, with the strongest and most sustained relationships observed in women's tennis, extending up to a five-day lag. In contrast, perceived wellness ratings showed no consistent associations with performance across teams or terms. These findings offer initial support for the PEM's climate–performance feedback loop and identify psychological climate as a potentially valuable indicator of team functioning in applied sport. Future research should examine potential moderators and mechanisms to guide targeted climate-based interventions.
Keywords: Physical activity psychology, Psychological climate, Team performance, Athlete monitoring, Practice environment model, Applied sport psychology.

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INTRODUCTION

Psychological climate refers to individuals' emotionally laden, subjective appraisals of their environment, particularly in relation to personal and team goals (James & Sells, 2013; Lazarus, 1991). These appraisals shape how athletes interpret the demands and affordances of their environment, influencing emotional regulation, attentional focus, effort allocation, and interpersonal behaviour. Psychological climate thus offers a critical lens for understanding how athletes experience and respond to their sporting contexts in real time.

Psychological climate is conceptually distinct from related constructs. Motivational climate describes the goal orientations promoted by significant others, such as coaches, parents, or peers, typically emphasising either task/mastery or ego/performance involvement (Harwood et al., 2015; Smith et al., 2016). In contrast, organisational climate reflects shared perceptions of policies, practices, and structures at the team or institutional level (Arnold & Fletcher, 2012). Psychological climate, by comparison, focuses on the individual's subjective evaluation of their environment's personal relevance and emotional significance (Smith et al., 2019, 2020a).

Theoretically, psychological climate is positioned to influence key psychological processes and behavioural outcomes in sport. According to cognitive-motivational-relational models of emotion (Lazarus, 1991), athletes' appraisals of their environment shape coping strategies, emotional responses, persistence, and social functioning. These processes, in turn, underpin performance in both individual and team contexts (Arnold & Fletcher, 2012; Fletcher & Wagstaff, 2009).

Empirical research supports relationships between individual psychological variables and performance. Positive mood states are associated with enhanced concentration and execution, while negative moods can impair decision making and motor performance (Beedie et al., 2000). Team cohesion consistently correlates with collective success, with cohesive teams outperforming their less cohesive counterparts (Carron et al., 2002). Motivation sustains effort, focus, and persistence in pursuit of sport goals (Duda & Nicholls, 1992; Harwood et al., 2015). However, these constructs have largely been studied in isolation or as mediators, rather than as interconnected components of an integrated climate appraisal (Wagstaff, 2019).

The Practice Environment Model (PEM; Smith et al., 2020b) provides a holistic framework for understanding psychological climate in sporting environments. The PEM conceptualises climate as emerging from the interaction of effort, preparation, team-first orientation, support, and ability ranking perceptions. A measure of the PEM has recently been developed and validated (Smith et al., under review), providing a robust tool to quantify these dimensions in sport settings. Building on this, unpublished work by these authors has produced a short-form PEM version tailored for integration with digital platforms. This short form enables high-frequency, low-burden monitoring while preserving the conceptual integrity of the full model. The PEM also posits a cyclical feedback loop: athletes' climate appraisals shape performance, which in turn informs future perceptions of the environment. This dynamic model reflects the real-world fluidity of sporting environments and offers a comprehensive lens for examining climate–performance relationships over time.

While the PEM and related frameworks suggest that psychological climate influences team functioning, these associations remain underexplored in applied sport settings. Conceptually, climate appraisals are expected to modulate emotional regulation, attentional control, coping, and collaborative functioning; processes essential for effective team performance (Arnold & Fletcher, 2012; Lazarus, 1991; Smith et al., 2021). Yet, no study has systematically examined whether daily fluctuations in psychological climate are temporally associated with subsequent team outcomes. While validated tools confirm that psychological climate is

measurable, its practical relationship to performance outcomes, especially in dynamic, high-performance environments, remains largely theoretical.

Bridging this gap requires methodological innovation: tools that can capture meaningful, high-frequency climate data without burdening athletes or disrupting high-performance routines. Traditional psychometric instruments are often too lengthy, infrequent, or burdensome for regular use in applied sport contexts (Duignan et al., 2020; Horvath & Röthlin, 2018). Athletes and coaches are understandably reluctant to complete long questionnaires during periods of intensive training or competition. Research shows that longer tools reduce compliance, increase careless responding, and degrade data quality (Brink et al., 2018; Galesic & Bosnjak, 2009). As a result, most studies rely on sparse or cross-sectional data that fail to capture the temporal interplay between psychological climate and team functioning proposed by models like the PEM.

The PEM short form was designed to address this bottleneck and has been integrated into the MIMIR platform to enable efficient, high-frequency monitoring of psychological climate in applied sport settings. Its development provides a streamlined measure capable of integrating into daily routines and supporting reliable, real-time monitoring of psychological climate. This innovation enables researchers to capture dynamic fluctuations in climate perceptions at high frequency without imposing undue cognitive or logistical load, thus operationalising the PEM's core constructs in an applied sport setting.

The MIMIR platform also obtains a measure of daily perceived wellness from athletes. In high-performance sport, daily or weekly wellness monitoring has become a standard practice, particularly in professional and elite team environments (Saw, Main, & Gastin, 2016; Taylor et al., 2012). Subjective wellness measures typically assess athletes' perceptions of fatigue, mood, stress, sleep quality, and muscle soreness, offering coaches and support staff valuable insights into recovery status and potential risk factors for injury or underperformance. Despite their widespread use, these wellness measures are often employed pragmatically rather than theory-driven, and their empirical linkage to psychological climate or team functioning remains underexplored.

Conceptually, psychological climate might shape perceived wellness through its influence on stress appraisals, emotional regulation, and recovery behaviours (Lazarus & Folkman, 1984). A positive climate could act as a protective factor, supporting emotional well-being and resilience to daily stressors, whereas a negative climate might exacerbate fatigue or impede recovery. Yet, empirical studies explicitly examining these links in sport are scarce. Similarly, while perceived wellness measures are commonly interpreted as indicators of readiness or risk, evidence for their direct relationship to subsequent team performance is equivocal. As a subjective and perceptual measure, wellness could also be considered a form of psychological assessment. Unlike objective measures such as heart rate or hormonal markers, wellness ratings reflect athletes' personal perceptions of their status, which may or may not align with physiological indicators. For example, an athlete might report feeling fatigued or unwell despite showing no objective signs of under-recovery. This highlights the importance of examining how wellness, as a perceptual construct, compares to other psychological appraisals such as climate.

The present study employs the MIMIR platform, a digital tool built for high-frequency, low-burden assessment. MIMIR delivers brief daily psychological climate and wellness measures via automated prompts integrated into athletes' workflows (e.g., in the morning after waking or after practice or competition). This design ensures minimal disruption while enabling the ecological validity required to track dynamic psychological states in real time. MIMIR reflects best practice in ecological momentary assessment, an approach shown to enhance compliance and data quality in health and behavioural science (Eisele et al., 2022; Ng et al., 2019;

Shiffman et al., 2008). While ecological momentary assessment has been widely adopted in these fields, its application to monitoring team psychological climate in sport remains rare, representing an important methodological advance (Duignan et al., 2020; Wagstaff, 2019).

A key strength of the MIMIR platform is its capacity to support time-lagged analysis. This allows researchers to test whether psychological climate perceptions on one day are associated with team functioning in subsequent days, directly addressing the PEM's core proposition that climate and performance interact through dynamic feedback loops (Smith, Cotterill et al., 2020b). Data collected via MIMIR also enable direct comparisons between psychological climate appraisals and perceived wellness ratings, providing new insights into their distinct and overlapping contributions to athlete functioning.

This study used subjective coach ratings as the primary measure of team performance. Coaches are ideally placed to provide rich, contextually grounded evaluations that extend beyond binary outcomes such as win or loss. Their ratings integrate technical, tactical, and psychosocial observations, including cohesion, tactical adherence, effort, and execution quality (Cushion et al., 2012; Larkin & O'Connor, 2017). Such subjective ratings are widely used in applied sport science, including talent identification, training load monitoring, and match analysis, because they provide ecologically valid, expert-derived metrics of team functioning (Williams et al., 2020). Coach ratings align well with the PEM's holistic focus, offering an appropriate performance anchor for examining climate–functioning relationships in real-world sport environments.

The aim of this study was to examine the temporal relationships between psychological climate and coach-rated team functioning in applied sport settings, providing the first empirical test of the Practice Environment Model's (PEM) central propositions. In addition, the study examined whether perceived wellness ratings, widely used in applied sport, show similar temporal associations with team functioning, and how wellness and climate appraisals relate in daily training environments. Specifically, we explored how psychological climate and perceived wellness ratings vary across time and how each variable may be independently or jointly related to subsequent coach assessments of team performance.

Daily climate, wellness, and coach ratings were collected via the MIMIR platform, enabling high-frequency, low-burden monitoring. Using a correlational, time-lagged design, the study moves beyond static snapshots to examine dynamic climate–functioning and wellness–functioning relationships in applied sport contexts. We hypothesised that lower psychological climate ratings would be associated with lower subsequent team functioning, while higher climate ratings would be linked to more favourable performance appraisals. We further explored the relevance of perceived wellness ratings and their potential relationships with both psychological climate perceptions and coach-rated team functioning. By integrating high-frequency digital monitoring with time-lagged analysis, this study advances sport psychology's methodological toolkit and begins to map the dynamic relational processes central to the PEM.

METHOD

Participants
A total of 48 student-athletes from a university in the southeastern United States participated in the study. Participants were recruited from three varsity sports: men's soccer (n = 21), women's soccer (n = 17), and women's tennis (n = 10). All participants competed in NCAA Division II intercollegiate athletics as members of the Sunshine State Conference. Participants in the men's soccer team had a mean age of 20.71 years (range = 18–24). The women's soccer team had an average age of 19.41 years (range = 17–22), and the women's tennis team had an average age of 20.10 years (range = 17–26). All participants were included in

the study and consistently engaged with the MIMIR platform by completing daily entries in accordance with the study protocol. The daily entries enabled the exploration of temporal relationships between psychological climate, perceived wellness, and coach-rated team functioning across sporting contexts. The head coaches for each team were male and had significant collegiate coaching experience. The men's soccer coach (aged 56 years) had over 30 years of experience, the women's soccer coach (aged 41 years) had approximately 15 years of experience, and the women's tennis coach (aged 42 years) had nearly 20 years of collegiate coaching experience.

Digital platform and measures
Data were collected using MIMIR (version 1.2.2), a mobile-based digital platform designed to enable real-time monitoring of psychological climate and perceived wellness among sports teams. Athletes completed self-report measures via the application twice daily (once for climate and once for wellness), and head coaches submitted performance evaluations once daily in accordance with the study protocol. Psychological climate was assessed using seven Likert-type items measuring daily perceptions of the team's psychological environment. Responses ranged from 1 (Strongly Disagree) to 7 (Strongly Agree), capturing distinct subdimensions of psychological climate. For each team, a daily average score (range = 1–7) was computed to reflect overall perceptions. Perceived wellness was monitored using six items completed daily by athletes. These items assessed perceptions of stress, mood, sleep, energy, muscle soreness, and diet. Each item was rated on a 1–7 scale, with scale anchors tailored to each construct (e.g., 1 = "*very poor*" sleep, 7 = "*excellent*" sleep). A daily team average score (range = 1–7) was calculated.

Head coaches provided a daily team performance rating based on their subjective assessment of overall team functioning. This rating encompassed factors such as training performance, competitive outcomes, and team cohesion. Ratings were recorded on a 1–7 scale and allowed for one decimal place to capture subtle distinctions (e.g., 4.7). To minimise potential bias, head coaches were blinded to athlete data and were unable to view any wellness or psychological climate responses prior to submitting their independent team performance rating.

Procedure
Data were collected during two university academic terms that aligned with the competitive season. The fall term spanned from 1 September 2024 to 23 November 2024, while the spring term extended from 20 January 2025 to 18 April 2025. Each morning, athletes were prompted via mobile notifications to complete the perceived wellness questionnaire after waking. In the evening, they completed the psychological climate questionnaire following all sporting activities. Questionnaire completion was brief (under 1 minute) and completed at participants' convenience within coach-specified windows. Coaches received a daily prompt to complete the team performance rating in the evening. All data were timestamped and stored securely within the MIMIR platform.

Compliance rates were calculated to assess the proportion of completed daily entries relative to the total number of expected reporting days for each team. The women's soccer team, whose data was collected across both the Fall and Spring terms, achieved a compliance rate of 97.13%, indicating strong overall engagement with only a small number of days missed. The men's soccer team, also monitored over both terms, recorded a higher compliance rate of 99.42%, with just one day of data missing throughout the academic year. The women's tennis team's data was collected exclusively during the Spring term, starting from February 16th, 2025, and achieved a perfect compliance rate of 100%, with all expected responses submitted. These figures provide a clear indicator of participation consistency and data reliability across the different groups.

In terms of coach performance score compliance, the men's soccer coach completed 59.1% of expected daily ratings, the women's soccer coach 70.2%, and the women's tennis coach 74.5%. These figures reflect variability in coach engagement with the performance rating component of data collection but still enabled sufficient data density for examining day-to-day relationships between psychological climate, perceived wellness, and team functioning.

Data analysis

Preprocessing

Data were exported from the MIMIR platform and analysed using IBM SPSS Statistics (Version 31). Daily team-level averages were computed for each variable. To examine potential temporal relationships, time-lagged versions of psychological climate and perceived wellness scores were created. Lag intervals ranged from 1 to 6 days, aligning earlier climate or wellness states with later observations of coach performance ratings.

Statistical analysis

Given the ordinal nature of the Likert-scale data and the likelihood of non-normality, Spearman's rank-order correlations were used to examine relationships among the study variables. Specifically, associations were tested between psychological climate and perceived wellness, psychological climate and coach performance ratings, and perceived wellness and coach performance ratings. Time-lagged associations were also examined, with psychological climate or perceived wellness on Day t assessed in relation to coach performance ratings on Day t + 1. Because non-parametric tests were employed and the data were ordinal, normality assumptions were not formally tested. Although multiple lagged correlations were evaluated individually, no correction for multiple comparisons (e.g., Bonferroni adjustment) was applied given the exploratory nature of the analysis. All analyses were conducted separately by sport rather than aggregated across teams, in order to preserve sport-specific dynamics and to avoid issues related to nested data structures. Sample sizes for each lagged analysis varied slightly due to occasional missing data.

Ethical considerations

This study received ethical approval from the researcher's University Review Board prior to analysis. The data were collected independently by a third-party organisation via the MIMIR platform and were fully anonymised prior to being shared with the researcher. All participants had previously consented to the collection and use of their psychological and wellness data through the platform's registration process. As the researcher did not have access to any identifiable information and did not participate in the data collection process, participant confidentiality was fully maintained throughout.

RESULTS

Descriptive statistics

Descriptive statistics for psychological climate, perceived wellness, and coach ratings across teams are shown in Table 1. Women's tennis reported the highest mean psychological climate (M = 6.39, SD = 0.16) and coach rating (M = 6.32, SD = 0.26). Wellness scores were broadly similar across teams.

Table 1. Descriptive statistics for psychological climate, perceived wellness, and coach rating.

Team	Psychological Climate M (SD)	Perceived Wellness M (SD)	Coach Rating M (SD)
Men's Soccer	5.70 (0.29)	5.17 (0.35)	5.15 (0.31)
Women's Soccer	5.43 (0.31)	4.85 (0.33)	5.08 (0.95)
Women's Tennis	6.39 (0.16)	4.80 (0.29)	6.32 (0.26)

Same-day relationships: Psychological climate and perceived wellness

Same-day Spearman correlations between psychological climate and perceived wellness revealed variable patterns across teams and terms, highlighting the dynamic interplay between these constructs in different contexts. For the Men's Soccer team, a significant positive correlation was observed during term one, indicating that psychological climate was associated with perceived wellness on the same day (r = 0.442, *p* < .001, n = 102). However, this association was not maintained in term two, where the correlation was negative but non-significant (r = -0.130, *p* = .201, n = 99). In Women's Soccer, no significant association was found in term one (r = -0.018, *p* = .867, n = 84), indicating that the psychological climate did not appear to be linked to same-day wellness during this period. Interestingly, term two demonstrated a small but statistically significant positive correlation (r = 0.211, *p* = .043, n = 93). For Women's Tennis, no relationship was detected, with the correlation approaching zero (r = -0.001, *p* = .993, n = 85).

Time-lagged relationships: Psychological climate and coach rating

Same-day and lagged Spearman correlations between psychological climate and coach ratings of performance revealed distinct patterns across teams and terms, reflecting nuanced temporal relationships within each sporting context. In Men's Soccer, psychological climate was not significantly associated with same-day coach ratings during term one (r = 0.214, *p* = .055, n = 81), although this correlation approached significance and suggested a small positive relationship. At a 1-day lag, however, a significant positive association was observed (r = 0.254, *p* = .022), indicating positive psychological climate was related to coach ratings the following day. In term two, no significant associations were found between psychological climate and coach ratings, either on the same day or at any lagged intervals (all *p* > .05).

For Women's Soccer, a modest significant relationship between psychological climate and same-day coach ratings was identified in term one (r = 0.256, *p* = .039, n = 65), suggesting that changes in climate corresponded with evaluations by the coach on the same day. However, no significant lagged associations were observed (all *p* > .05). In term two, psychological climate was unrelated to coach ratings at both same-day and lagged intervals (all p > .05). In Women's Tennis during term two, psychological climate demonstrated a significant positive association with coach ratings on the same day (r = 0.359, *p* = .020, n = 43) and at a 1-day lag (r = 0.314, *p* = .045, n = 42). Notably, the strength of association increased further at a 5-day lag (r = 0.399, *p* = .010, n = 41), suggesting potential longer-term relational effects of psychological climate on coach performance evaluations. No other lag intervals yielded significant associations.

Time-lagged relationships: Perceived wellness and coach rating

Time-lagged Spearman correlations between perceived wellness and coach performance ratings were generally small and nonsignificant across teams and terms, suggesting limited short-term associations between athletes' wellness states and coach evaluations of performance over short temporal intervals. In Men's Soccer, no significant associations were found between perceived wellness and coach ratings on the same day during term one (r = -0.213, *p* = .056, n = 81), though this negative correlation approached significance. Similarly, no significant lagged relationships were detected. In term two, perceived wellness was not significantly associated with coach ratings on the same day or at any lag interval (all *p* > .05). For Women's Soccer, wellness was not significantly related to coach ratings on the same day during term one (r = 0.034, *p* = .790, n = 65), nor at any lagged interval (all *p* > .05). This pattern was consistent in term two, where no significant associations were found between wellness and coach ratings at any lag interval (all *p* > .05, n = 33). In Women's Tennis during term two, no significant same-day or lagged correlations were observed between perceived wellness and coach ratings (all *p* > .05). However, a trend toward significance was noted for the same-day association (r = 0.291, *p* = .058, n = 43), suggesting a possible weak positive relationship that did not meet the conventional threshold for statistical significance.

DISCUSSION

This study represents one of the first empirical examinations of the Practice Environment Model's (PEM) core proposition: that athletes' psychological climate perceptions are temporally related to subsequent team performance, as rated by expert coaches. Additionally, the study explored perceived wellness ratings, commonly used in applied sport settings, in relation to team functioning. Using high-frequency digital monitoring and time-lagged analysis, this study provides novel insights into the temporal associations between psychological climate, perceived wellness, and team performance across multiple teams and sporting contexts.

Consistent with PEM propositions, psychological climate ratings were significantly associated with coach-rated team performance in several contexts. These positive associations provide valuable initial support for the PEM's climate–performance feedback loop, offering proof-of-concept for its utility in applied sport environments. Notably, in women's tennis, psychological climate showed robust associations with coach ratings both on the same day and at lag intervals extending up to five days. This sustained pattern highlights the potential of psychological climate as a key indicator of team functioning, especially in sports with individual–team hybrid structures. This aligns with broader evidence linking positive motivational and organisational climates to enhanced performance outcomes (Carron et al., 2002; Fletcher & Wagstaff, 2009). These findings support theoretical accounts positioning climate appraisals as key modulators of attentional control, effort, coping, and collaboration (Lazarus, 1991; Arnold & Fletcher, 2012).

In men's soccer, psychological climate showed a meaningful positive relationship with coach ratings at a 1-day lag during term one, underscoring the capacity of climate perceptions to reflect performance-related states across short time frames. Although no significant relationships were observed in term two, this variability may reflect dynamic team processes or seasonal changes in demands (e.g., Cotterill et al., 2019). In women's soccer, a modest but significant same-day association emerged during term one, providing further support for the link between psychological climate and team performance, even if lagged effects were not detected. Together, these findings suggest that psychological climate may serve as a flexible and context-responsive relational variable for understanding team functioning. Differences across teams and terms may reflect contextual moderators such as team dynamics, competitive schedules, or coaching strategies that shape the strength of these associations. Importantly, the observed positive relationships across multiple contexts offer a strong foundation for further applied research.

In contrast, perceived wellness ratings, despite their prevalence in elite sport (Saw et al., 2016; Taylor et al., 2012), showed little evidence of association with team functioning over time. Across all teams and terms, wellness ratings were not significantly related to coach performance evaluations at any lag interval. While these measures are commonly used to monitor individual perceived readiness and recovery, our findings suggest that daily wellness ratings may not capture the psychological and social mechanisms most critical to collective performance outcomes. This echoes previous work highlighting the importance of constructs such as team confidence, shared identity, and social cohesion in supporting group performance (Fransen et al., 2015). Perceived wellness may be more informative at the individual level, where stress, fatigue, or recovery fluctuations are more readily tied to personal performance, rather than as a team-level indicator of functioning.

Overall, study findings provide important initial evidence supporting the PEM's climate–performance feedback loop (Smith et al., 2020b), demonstrating that positive climate perceptions can be temporally associated with enhanced team functioning in applied settings. These relationships appear to be context-dependent and temporally variable, with the strongest effects seen in women's tennis. This suggests that

factors such as team structure, cohesion, or sport type may moderate climate–performance dynamics. Future research should investigate such moderators using multilevel modelling approaches and explore whether interventions aimed at improving psychological climate (e.g., communication strategies, leadership development) can consistently support team functioning. Longitudinal and intervention-based designs, particularly those integrating qualitative data, would further illuminate the mechanisms behind these associations.

From a practical standpoint, the findings support the value of integrating psychological climate monitoring into athlete management systems. Climate ratings may provide performance-relevant insights not captured by standard wellness tools, supporting coaches in identifying early signs of collective functioning shifts. This aligns with growing calls for psychologically informed, context-sensitive monitoring tools in applied sport science (Brink et al., 2018; Duignan et al., 2020). However, the variability in findings across teams underscores the importance of interpreting these metrics in light of team-specific dynamics and contextual factors. The use of high-frequency, digital climate and wellness monitoring, paired with time-lagged analysis, represents a methodological advance in the study of team dynamics. Future work should build on this by incorporating objective performance metrics, coach behaviours, and measures of team cohesion to triangulate these emerging climate–functioning relationships. Expanding this approach across sports and competition levels will further enhance the generalisability and applied utility of the PEM.

Limitations
While this study provides novel insights into the temporal relationships between psychological climate, perceived wellness, and team performance, several limitations warrant consideration. First, although high-frequency data were collected, sample sizes within specific lag intervals and team terms were sometimes modest, particularly for time-lagged analyses in term two of both women's soccer and men's soccer. This may have reduced statistical power, limiting the ability to detect smaller effects. Additionally, lower compliance with coach performance ratings, compared to consistently high athlete compliance, may have further limited the available data for examining day-to-day associations between athlete inputs and team functioning outcomes.

Second, no statistical correction for multiple comparisons was applied in this exploratory analysis. Given the number of correlations tested, the risk of Type I error is elevated. Some significant findings may reflect chance rather than robust effects. Future research should pre-specify primary hypotheses, focus on theoretically meaningful lag intervals, and/or apply corrections (e.g., Holm-Bonferroni) to support stronger inferences.

Third, coach ratings, while ecologically valid and contextually rich, are inherently subjective. Although these ratings integrate technical, tactical, and psychosocial elements, they may also be influenced by rater bias, match outcomes, or other contextual factors. Incorporating objective performance indicators or independent assessments in future studies could enhance the validity and triangulation of team functioning metrics.

Finally, while wellness ratings were included alongside climate measures, this study did not assess potential mechanisms (e.g., coping behaviours, attentional regulation, emotional adaptation) that might explain how psychological climate influences team functioning. Including such mediators in future work would strengthen the theoretical interpretation of observed climate–performance relationships.

CONCLUSION

This study provides initial empirical evidence supporting the Practice Environment Model's proposition that athletes' psychological climate appraisals are temporally associated with subsequent team functioning. Significant climate–performance relationships were most consistently observed in women's tennis, with smaller or more variable effects across team sport contexts. In contrast, perceived wellness ratings, despite their routine use in elite sport, did not demonstrate consistent associations with coach-rated team functioning.

These findings highlight the potential value of psychological climate monitoring as a complementary tool in applied sport environments. By offering insight into athletes' real-time perceptions of the practice environment, climate data may provide a contextually meaningful indicator of collective functioning. Future research should continue to explore the mechanisms, moderators, and practical applications of these dynamic climate–functioning relationships, particularly through intervention and longitudinal designs that can test the model in applied performance settings.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request. Due to ethical restrictions and participant confidentiality, the data are not publicly available.

REFERENCES

Arnold, R., & Fletcher, D. (2012). A research synthesis and taxonomic classification of the organizational stressors encountered by sport performers. Journal of Sport and Exercise Psychology, 34(3), 397-429. https://doi.org/10.1123/jsep.34.3.397

Beedie, C. J., Terry, P. C., & Lane, A. M. (2000). The profile of mood states and athletic performance: Two meta-analyses. Journal of Applied Sport Psychology, 12(1), 49-68. https://doi.org/10.1080/10413200008404213

Brink, M. S., Kuyvenhoven, J. P., Toering, T., Jordet, G., & Frencken, W. G. (2018). What do football coaches want from sport science? Kinesiology, 50(1), 150-154.

Carron, A. V., Bray, S. R., & Eys, M. A. (2002). Team cohesion and team success in sport. Journal of Sports Sciences, 20(2), 119-126. https://doi.org/10.1080/026404102317200828

Carron, A. V., Colman, M. M., Wheeler, J., & Stevens, D. (2002). Cohesion and performance in sport: A meta-analysis. Journal of Sport and Exercise Psychology, 24(2), 168-188. https://doi.org/10.1123/jsep.24.2.168

Cotterill, S., Cheetham, R., & Fransen, K. (2019). Professional rugby coaches' perceptions of the role of the team captain. The Sport Psychologist, 33(4), 276-284. https://doi.org/10.1123/tsp.2018-0094

Cushion, C. J., Harvey, S., Muir, B., & Nelson, L. (2012). Developing the coach analysis and intervention system (CAIS): Establishing reliability and validity of a computerised systematic observation

instrument. Journal of Sports Sciences, 30(2), 201-216. https://doi.org/10.1080/02640414.2011.635310

Duignan, C., Doherty, C., Caulfield, B., & Blake, C. (2020). Single-item self-report measures of team-sport athlete wellbeing and their relationship with training load: A systematic review. Journal of Athletic Training, 55(9), 944-953. https://doi.org/10.4085/1062-6050-0528.19

Duda, J. L., & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. Journal of Educational Psychology, 84(3), 290-299. https://doi.org/10.1037/0022-0663.84.3.290

Eisele, G., Vachon, H., Lafit, G., Kuppens, P., Houben, M., Myin-Germeys, I., & Viechtbauer, W. (2022). The effects of sampling frequency and questionnaire length on perceived burden, compliance, and careless responding in experience sampling data in a student population. Assessment, 29(2), 136-151. https://doi.org/10.1177/1073191120957102

Fletcher, D., & Wagstaff, C. R. D. (2009). Organizational psychology in elite sport: Its emergence, application and future. Psychology of Sport and Exercise, 10(4), 427-434. https://doi.org/10.1016/j.psychsport.2009.03.009

Fletcher, D., Hanton, S., Mellalieu, S. D., & Neil, R. (2012). A conceptual framework of organizational stressors in sport performers. Scandinavian Journal of Medicine & Science in Sports, 22(4), 545-557. https://doi.org/10.1111/j.1600-0838.2010.01242.x

Fransen, K., Haslam, S. A., Steffens, N. K., Vanbeselaere, N., De Cuyper, B., & Boen, F. (2015). Believing in "us": Exploring leaders' capacity to enhance team confidence and performance by building a sense of shared social identity. Journal of Experimental Psychology: Applied, 21(1), 89-100. https://doi.org/10.1037/xap0000033

Galesic, M., & Bosnjak, M. (2009). Effects of questionnaire length on participation and indicators of response quality in a web survey. Public Opinion Quarterly, 73(2), 349-360. https://doi.org/10.1093/poq/nfp031

Harwood, C. G., Keegan, R. J., Smith, J. M. J., & Raine, A. S. (2015). A systematic review of the intrapersonal correlates of motivational climate perceptions in sport and physical activity. Psychology of Sport and Exercise, 18, 9-25. https://doi.org/10.1016/j.psychsport.2014.11.005

Horvath, S., & Röthlin, P. (2018). How to improve athletes' return of investment: Shortening questionnaires in the applied sport psychology setting. Journal of Applied Sport Psychology, 30(2), 241-248. https://doi.org/10.1080/10413200.2017.1382020

James, L. R., & Sells, S. B. (2013). Psychological climate: Theoretical perspectives and empirical research. In D. Magnusson (Ed.), Toward a psychology of situations: An interactional perspective (pp. 285-306). Psychology Press.

Larkin, P., & O'Connor, D. (2017). Talent identification and recruitment in youth soccer: Recruiters' perceptions of the key attributes for player recruitment. PloS ONE, 12(4), e0175716. https://doi.org/10.1371/journal.pone.0175716

Lazarus, R. S. (1991). Emotion and adaptation. Oxford University Press. https://doi.org/10.1093/oso/9780195069945.001.0001

Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer.

Ng, M. M., Firth, J., Minen, M., & Torous, J. (2019). User engagement in mental health apps: A review of measurement, reporting, and validity. Psychiatric Services, 70(7), 538-544. https://doi.org/10.1176/appi.ps.201800519

Saw, A. E., Main, L. C., & Gastin, P. B. (2016). Monitoring the athlete training response: subjective self-reported measures trump commonly used objective measures: a systematic review. British Journal of Sports Medicine, 50(5), 281-291. https://doi.org/10.1136/bjsports-2015-094758

Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological momentary assessment. Annual Review of Clinical Psychology, 4, 1-32. https://doi.org/10.1146/annurev.clinpsy.3.022806.091415

Smith, N., Quested, E., Appleton, P. R., & Duda, J. L. (2016). Observing the coach-created motivational environment across training and competition in youth sport. Journal of Sports Sciences, 34(10), 899-910.

Smith, S. M., Brown, H., & Cotterill, S. T. (2021). Implementing and evaluating the practice environment model using action research. International Sport Coaching Journal, 9(1), 100-110. https://doi.org/10.1123/iscj.2020-0117

Smith, S. M., Cotterill, S. T., & Brown, H. (2019). A case study of factors influencing performance in the practice environment. Case Studies in Sport and Exercise Psychology, 3(1), 33-40. https://doi.org/10.1123/cssep.2019-0004

Smith, S. M., Cotterill, S. T., & Brown, H. (2020a). The practice environment model: A framework for understanding the influence of the environment on athlete development and performance. International Sport Coaching Journal, 7(1), 1-14. https://doi.org/10.1123/iscj.2019-0015

Smith, S. M., Cotterill, S. T., & Brown, H. (2020b). An interpretative phenomenological analysis of coach perceptions in the practice environment. The Sport Psychologist, 34(4), 257-267. https://doi.org/10.1123/tsp.2020-0021

Smith, S. M., Gennings, A., & Ahn, A. N. (under review). Development and validation of a measure of the Practice Environment Model (PEM). Manuscript under review.

Taylor, K., Chapman, D., Cronin, J., Newton, M. J., & Gill, N. (2012). Fatigue monitoring in high performance sport: A survey of current trends. Journal of Australian Strength and Conditioning, 20(1), 12-23.

Williams, A. M., Ford, P. R., & Drust, B. (2020). Talent identification and development in soccer since the millennium. Journal of Sports Sciences, 38(11-12), 1199-1210. https://doi.org/10.1080/02640414.2020.1766647

Wagstaff, C. R. D. (2019). Organizational psychology in sport: An introduction. In C. R. D. Wagstaff (Ed.), The organizational psychology of sport: Key issues and practical applications (pp. 1-17). Routledge.