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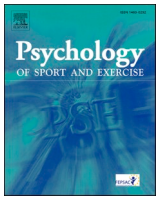

The psychology of esports: Trends, challenges, and future directions☆

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ABSTRACT

This rapid review examines how sport and exercise psychology (SEP) research has engaged with esports over the last five years, highlighting the academic acceptance of esports in SEP journals and on the psychological factors that influence esports performance and well-being. In addition to searching for recent empirical studies, we identified systematic reviews, meta-analyses, and scoping reviews to capture the breadth of existing syntheses. Following rapid review guidelines (Sabiston et al., 2022) and adapting the PRISMA framework (Page et al., 2021), two systematic searches were conducted in the Web of Science Core Collection and EBSCO host (SPORTDiscus) databases. First, we identified 13 syntheses of the esports literature highlighting the main topics of interest across scholars in relation to SEP. Then, we identified 125 relevant peer-reviewed empirical publications on esports in SEP context, of which 18 appeared in SEP-specific journals. Findings reveal increasing academic attention in affective, cognitive-motor processes, team dynamics, training structures, and health behaviors (e.g., mental health, physical activity, sleep, nutrition) unique to esports while revealing the need for theoretical and methodological attention. Overall, we highlighted how esports and SEP appear to benefit one another in a reciprocal way. Esports offer a controlled, data-rich performance environment for testing and refining SEP theories. Meanwhile, SEP principles enhance professionalism in esports by informing evidence-based training methods and well-being initiatives. Future research should consider longitudinal designs, open science practices, and interdisciplinary collaboration such as data science, sleep medicine, and nutrition to address the nuanced psychological demands in this rapidly evolving performance domain.

Electronic sports (esports) present a unique and suitable environment to empirically test and refine Sport and Exercise Psychology (SEP) theories and methods due to controlled settings, rich data availability, distinctive cognitive-motor demands, and opportunities to incorporate interdisciplinary approaches (Pedraza-Ramirez et al., 2020; Cottrell et al., 2019; Campbell et a., 2018). Esports is rapidly evolving as a significant field in contemporary sports culture, driven by various technological advancements, including high-speed internet and streaming platforms, alongside increased gaming popularity and youth engagement with digital platforms (Jin & Besombes, 2024).

The origins of esports trace back to the 1950s with early games like "Tennis for Two," transitioned from elite university settings in the 1950s and 1960s to widespread public access through arcade establishments in the 1970s, followed by home gaming consoles in the 1980s. Modern esports as recognized today emerged in the late 1990s with increased internet accessibility and home computing, enabling global

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competitions and structured tournaments (Scholz, 2019).

In recent years, esports has undergone significant "sportification", gaining national recognition as an official sport in countries like Denmark, Italy, and South Korea (Koskimaa, 2024). Major sporting organizations, including Paris Saint-Germain, FC Barcelona, and Manchester City, have entered the esports domain highlighting its growing social acceptance and institutional legitimacy. Significant milestones events, such as esports' inclusion in the 2018 Asian Games in Jakarta and its official medal sport status in Hangzhou 2023; Jin & Kim, 2024), alongside the International Olympic Committee initiatives (e.g., 2021 Olympic Virtual Series, 2023 Olympic Esports Week in Singapore, and upcoming 2027 Olympic Esports Games; Jenny et al., 2024; International Olympic Committee, 2025), reflect esports' establishment as a respected competitive domain.

This rapid evolution has drawn significant interest from SEP researchers, such as the early recognition by Murphy (2009) and later perspectives by Campbell et al. (2018) positioned esports as an ideal platform for studying neurocognitive expertise, highlighting applications in cognitive training, rehabilitation, and mental skill acquisition across diverse contexts. Consequently, the evolution of video gaming from recreational play into a highly competitive, professionalized activity (Pedraza-Ramirez et al., 2020) has solidified esports as a novel testing ground uniquely positioned to advance SEP theories. The standardized rules, consistent virtual environment, and robust data-collection capabilities (e.g., in-game analytics, physiological measures; Welsh et al., 2023) enable precise manipulation of variables, facilitating targeted investigations into psychological, cognitive-motor skills (Benoit et al., 2020; Bonilla et al., 2022), and affective processes (Behnke et al., 2022). For instance, esports competitions require sustained attention, rapid information processing, management of affective processes, and complex decision making (Pedraza-Ramirez et al., 2025) are core SEP constructs that can be rigorously explored.

Given the rapid growth in esports literature, synthesizing recent empirical body of research is critical to guide future research. A rapid review methodology, characterized by structured and streamlined search procedures, and targeted synthesis (Sabiston et al., 2022) is particularly suitable for efficiently capturing recent theoretical and methodological advancements and identifying gaps in the rapidly evolving esports psychology literature. This methodological choice aligns with the recommendations to implement rapid reviews where timely insights are needed.

The earliest systematic review explicitly integrating esports into SEP was conducted by Pedraza-Ramirez et al. (2020). This foundational review established the initial benchmarks, research priorities, and provided the definition of esports adopted in this paper: organized, competitive gameplay within structured leagues and ranking systems, providing community engagement, opportunities for fine cognitive-motor skill mastery, and competitive advancement. Specifically, Pedraza-Ramirez and colleagues differentiated esports from general video gaming literature and identified core psychological elements, such as cognitive flexibility, decision making, and performing under pressure, as key to esports performance. Reviewing 52 studies published up to 2020, they noted that expertise in esports, especially fast-paced genres, correlated consistently with superior cognitive flexibility (e.g., visuospatial working memory, selective attention, inhibitory control). Also, authors highlighted that success in esports was influenced by psychological variables and group dynamics like psychological safety, spectator presence, and motivational climate. Nonetheless, methodological limitations, including integration of in-game metrics, narrow the generalizability and ecological validity of the findings (Bediou et al., 2018; Sala et al., 2018). To address these gaps, they outlined a heuristic performance model and proposed a "Top 10 challenges" to guide rigorous post-2020 research.

Since this review, the SEP literature on esports has rapidly expanded, marked by an increased number of empirical studies addressing the theoretical and methodological challenges highlighted by Pedraza-Ramirez and colleagues. Thus, to capture this recent evolution, the present rapid review specifically synthesizes research published between 2020 and 2025. This period was chosen deliberately to build directly upon the research agenda set by Pedraza-Ramirez et al. (2020) and to critically evaluate how subsequent studies have addressed earlier methodological shortcomings and expanded the application of SEP theories within structured, competitive esports context.

In light of these advancements and to mark the 25th anniversary of *Psychology of Sport and Exercise journal*, this rapid review aims not only to synthesize the recent empirical findings, but also to, first, highlight how esports provide a novel, controlled, data rich testing ground for advancing SEP theories and methods under high-pressure situations. Second, to emphasize the growing contribution of SEP in professionalizing esports through established psychological principles to optimize player performance, enhance well-being, and improve team dynamics.

Consequently, this review synthesizes the current SEP literature on esports by addressing two main goals, first highlighting key trends and research priorities through the synthesis of peer-reviewed systematic reviews and meta-analyses. Second, considering the last years' development, we review the empirical literature research in SEP and highlight those publications in all *SEP journals* to examine the acceptance of esports in the academic field.

To provide a comprehensive and integrative overview, the review includes both synthesis studies and empirical work published in SEP-specific and interdisciplinary journals, provided they adhere to the defined inclusion criteria and align with our definition of esports. With this approach, we acknowledge that valuable esports-related SEP research often is published outside traditional SEP outlets, thus enabling a more holistic synthesis of the existing knowledge. The findings are structured and discussed according to clearly identified trends, ensuring a cohesive interpretation of the current state of the field and providing future directions for research and applied practice.

1. Method

1.1. Protocol

We implemented two searches of the literature following the guidelines for rapid reviews (Sabiston et al., 2022) and PRISMA guidelines for systematic reviews and meta-analysis (Page et al., 2021). In both searches, key terms and synonyms relevant to esports were initially identified through consultation with two experts in esports psychology and by reviewing previous literature syntheses. Then, the preliminary search terms were pilot tested to assess comprehensiveness and specificity, ensuring relevance in identifying the targeted publications. This led to the final search string, which was refined through iterative testing to balance sensitivity and specificity (see detailed review questions and selection criteria in Supplemental File 1).

1.2. Identifying relevant studies and the selection process

Consequently, in the first step searching for the types of evidence that synthesized the existing literature, we applied systematically across Web of Science Core Collection and EBSCO host (SPORTDiscus) databases that resulted in the search string as follow, ((esport* OR e-sport* OR e-athlete OR "competitive gaming" OR "competitive video gaming") AND (psychology OR sport* OR exercise) AND ("systematic review" OR "meta-analysis" OR review OR "scoping review")). We identified 305 relevant sources between 2010 and 2024 (see PRISMA flow diagram in Supplemental File 2). This broader timeframe was selected to ensure the inclusion of all potential foundational review efforts that positioned esports within SEP. Given that synthesis publications accumulate at slower pace than empirical work, this longer review window allowed for a more comprehensive overview of trends and research priorities displaying the evolution of research syntheses in the field. The inclusion criteria for this step were (a) research synthesis approaches, (b) content

pertaining to the psychology of esports performance, (c) reviews considering esports within the definition adopted in this paper, and (d) work published in the English language. We then identified 13 papers meeting the criteria, serving as guidelines to understand the current range of constructs across the literature, acknowledge the current rigor of the accumulated body of evidence, and establish a robust foundation for the subsequent rapid synthesis process (see Supplemental File 3).

In the second step, we searched the literature in the databases Web of Science Core Collection and EBSCO host examining the current literature on SEP in esports. We considered English peer-reviewed publications from 2020 to 2025, including qualitative and quantitative designs and addressing competitive and non-competitive topics. We determined our eligibility criteria using the Population, Concept, and Context mnemonic (Khalil & Tricco, 2022; see Supplemental File 1). In January 2025, the first author searched the databases with the following string of keywords: (esport* OR ″e-sport*" OR ″e-athlet*" OR "competitive gaming" OR "electronic sport*") AND (psychology OR sport* OR exercise). We limited our scope to studies published from 2020 onward, as the previous review from Pedraza-Ramirez et al. (2020) comprehensively covered earlier research, and the development of the field has increased, as shown in the recent synthesis work. Limiting the empirical search to 2020–2025 ensured that this rapid review focused on the most recent trends, research designs, and theoretical advancements, while allowing us to track how past recommendations from syntheses are being addressed in recent empirical work. We identified 125 relevant publications that highlight esports' growing recognition and interest as a research domain in SEP (see PRISMA flow diagram in Supplemental File 4).

1.3. Data extraction

We followed a standard procedure of screening all results at the title and abstract level to retrieve full text for publications meeting the inclusion criteria for eligibility. Following initial screening by the first author, the lead author and research assistant reviewed each full text for suitability resolving discrepancies through consensus (Sabiston et al., 2022; Tricco et al., 2018). Additionally, to ensure comprehensive inclusion of all relevant publications from the SEP domain, we manually searched in each English language peer-reviewed specific SEP journal (e.g., The Sport Psychologist, International Journal of Sport and Exercise Psychology, Journal of Applied Sport Psychology). We adhered to PRISMA guidelines while adapting to the accelerated timeline of a rapid review. Thus, we conducted a content analysis summarizing and reporting data relevant to our research questions. Specifically, we focused on identifying key psychological constructs and topics of interest within SEP (RQ1), documenting the esports research published in SEP journals (RQ2; see Supplemental File 5), mapping current trends in esports-related SEP research (RQ3; see Supplemental File 6), and highlighting underexplored areas within the existing literature (RQ4).

1.4. Reporting results

In line with recommendations for rapid reviews prioritizing clarity and timeliness (Sabiston et al., 2022), we present the results and discussion together in a unified section. This approach enabled us to trace the field's development in a timely manner and identify influential peer-reviewed contributions while guiding scholars toward potential publication venues. Also, it allowed us to have a more integrated synthesis of the findings and their conceptual and practical implications, particularly suited to esports psychology research's emerging and dynamic nature.

We first adopted a thematic analysis approach to guide the systematic identification and categorization of research trends within this rapid review, utilizing the VOSviewer software tool designed for bibliometric mapping and visualizations. The keywords were extracted and analyzed from the selected publications to identify thematic clusters and trends within the existing literature. Second, to ensure a clear alignment and categorization within the SEP domains, we complemented this method by utilizing established frameworks and concepts from foundational sport psychology textbooks (e.g., Foundations of Sport and Exercise Psychology; Weinberg and Gould, 2023). Specifically, categories such as affective processes, cognitive-motor processes, and group dynamics served as an initial conceptual guide. This approach provided a theoretically coherent basis for organizing the diverse range of esports-related studies within clear, established SEP domains. This combined approach to identify esports research trends was refined through critical evaluation and discussion among the research team, ensuring that the thematic visualization and established conceptual frameworks were reflected and integrated within the interpretation and discussion of our findings.

2. Mapping the psychology of esports: reviews and meta-analyses within the field

It is important to look at the work published beyond the SEP journals and in those SEP-specific outlets to broaden our perspective. First, we highlight syntheses published outside SEP journals, revealing complementary theories or methods, identifying knowledge gaps, and refining the research focus before narrowing to a more in-depth inquiry from a SEP journal's perspective.

2.1. Beyond SEP journals perspective

To date, looking beyond the SEP academic journals, we can highlight eight English synthesis of the literature across various topics. Bányai et al. (2019) reviewed the demands of esports players, highlighting key qualitative studies on the motivations for watching and participating in esports, with competition, social interaction, skill mastery, and enjoyment of the gaming environment as key factors. Also, the psychological demands were associated with extended training hours and performance pressure. Shulze et al. (2023), focused on understanding the bio-psychosocial risks faced by amateur and professional esports players, highlighting issues like stress, cognitive fatigue, physical strain, poor nutrition, and social challenges (e.g., harassment, toxic interactions, and lack of support) that can negatively affect well-being. Both reviews, Bányai et al. (2019) and Shulze et al. (2023) emphasized the need to build on the identified gaps of psychological support at the theoretical and methodological level, including on how to facilitate players' development and coping strategies, the need for industry professionals, support staff, and the creation of evidence-based interventions to develop targeted strategies to mitigate risks and foster healthier environments.

This need has also been addressed by Beres et al. (2023) review, examining the emotion regulation and coping strategies of esports players, emphasizing that both should be integrated into esports training programs. For example, the authors highlighted that support staff and industry professionals could cooperate to develop and integrate evidence-based interventions by implementing technical tools, like biofeedback, in-game stress management systems, and structured coping education to support players' performance demands better.

Next, in their three-level meta-analysis, Miao et al. (2024) investigated the cognitive differences between expert and amateur esports players, revealing that expert players exhibited significant effects on spatial cognition and bottom-up attention. The authors emphasize the role of training and experience as an important variable with positive cognitive effects. On the contrary, authors explained that experts' motor control did not show advantage across the reviewed evidence, hypothesizing that the enhanced motor control of experts is dependent on the context familiarity, thus it may not be observed in general cognitive tasks. Theoretical and methodological rigor is inquired, given the small sample sizes, poor reporting of expertise indicators, and gender diversity in the current empirical work, and there is a need to better understand

the role of domain-specific cognitive functions such as decision making.

Toth and colleagues (2020) published a dual systematic review providing insights into how exercise may enhance cognitive performance in esports players. The review suggests that the effects of exercise on cognitive abilities are not clear in comparison to the effect on mood and physical health, therefore they suggest that further research is required while considering incorporating different exercise type, intensity, and duration into players' training routines to gain the potential cognitive benefits and counteract the sedentary nature of gaming. Similarly, Sanz-Matesanz et al. (2023) reviewed the literature on physical and psychological factors, highlighting psychological and physical risk factors associated with sedentary behavior, long training hours, well-being, and mental health challenges while addressing the role of exercise, sleep, and psychological skills to reduce and prevent the risks of esports performance. The authors emphasized that preventive health measures, scoping strategies, and interdisciplinary approaches would support the well-being of players while aiding the psychological and cognitive performance development.

Addressing the calls on holistic and integrative approaches, Białecki et al. (2024) reviewed current esports training systems and performance models, concluding that there is little integration across domains like psychology, nutrition, and technology. They called for the development of standardized frameworks addressing the unique demands of esports and establishing comprehensive training models. Meanwhile, Gisbert-Pérez et al. (2024) examined the organizational and psychological team (e.g., communication, cohesion, leadership) dynamics that influence esports teams' performance and functioning. Both reviews addressing the training and team processes highlighted that they are not unique to esports, as they show parallels to other high-performance contexts such as traditional sports teams. Thus, esports would benefit from the adaptation of training systems, like periodization models from traditional sports, and integration of psychology and sports psychology theories concerning group behavior, as it would help advance the field.

In summary, these literature reviews from beyond SEP-specific journals highlight critical common themes to esports research, including stress and emotion regulation, cognitive enhancement through domain-specific practice, and biopsychosocial risks associated with esports participation. Collectively, the reviews underscore the urgent need for interdisciplinary and holistic approaches, calling for greater integration of psychological, physical, and organizational domains into structured esports training programs. Additionally, there is consistent encouragement for evidence-based interventions, methodological rigor, and enhanced theoretical clarity to address gaps related to player well-being, performance optimization, and team dynamics. These shared themes reinforce the necessity of comprehensive training frameworks and interdisciplinary cooperation to foster healthier environments and sustainable high performance in esports.

2.2. SEP journals perspectives

Although research on SEP in the esports context remains in its early developmental stages, five key systematic and scoping reviews of the literature published in SEP journals have advanced the field while adhering to standardized protocols (e.g., PRISMA, Cochrone guidelines). Each review clearly aligned with core SEP topics, including stress, coping, performance, psychophysiological responses, and training, and emphasized the importance of translating traditional SEP theories to the esports context. Three of these were published at the *International Review of Sport and Exercise Psychology (IRSEP;* Leis et al., 2024; Pedraza-Ramirez et al., 2020; Poulus et al., 2024c) and two were published at the *PSE* (Leis & Lautenbach, 2020; Welsh et al., 2023).

As addressed before, the earliest systematic review integrating esports in the SEP field (Pedraza-Ramirez et al., 2020) identified 52 publications, highlighting the importance of distinguishing between esports and general gaming by accounting for the competitive and performance-oriented nature of specific esports and their unique elements when compared to similar games. They proposed an esports definition and heuristic model to guide future research between psychological and in-game performance variables, advocating methodological rigor and greater ecological validity.

Building on this foundation, Leis and Lautenbach (2020) reviewed the psychophysiological stress responses in competitive esports settings associated with esports. Their review identified 17 studies, revealing that while non-competitive play may not significantly trigger psychophysiological stress reactions (e.g., anxiety, cortisol), competitive esports settings showed contrasting results, suggesting that competitive play can trigger stress responses. Aligned with Pedraza-Ramirez et al. (2020), they call for robust theoretical frameworks and methodologies to develop strategies to manage stress and optimize performance for esports players.

Advancing this focus, Welsh and colleagues (2023) specifically reviewed the use of heart rate variability (HRV) as a measure of self-regulation in esports, emphasizing theoretical and methodological foundations to guide future research. The authors found methodological issues (e.g., small samples, varied HRV metrics, and inconsistent measurement protocols) across seven studies. Nonetheless, the review indicated HRV's promising indicator of stress and self-regulation, demonstrated by professional players' superior autonomic regulation (i.e., higher HRV during stress and faster post-stress recovery) compared to amateur players and the given controlled yet competitive esports environment. Thus, authors advocate that the development of esports could play an important role in testing SEP theories and interventions to inform traditional sports.

Continuing the focus on stress in esports, Leis et al. (2024) systematically categorized key stressors (i.e., performance, team issues, organizational challenges, and personal) from 19 esports studies. Authors highlight that esports performance-related stressors mirrored traditional sports, but esports introduced unique stressors that could inform SEP research, including decision-making under time pressure, technical disruptions, and the constant game updates. They highlighted distinct team-related issues due to digital communication challenges, intense organizational demands, and amplified stress and anxiety from live-streaming and immediate social media feedback. Emphasizing on the complexity and breadth of these digital esports-specific stressors, not typically present in traditional sports, authors urged for the development of holistic support structures and targeted psychological interventions to promote sustained well-being.

Finally, continuing with the progression to narrowing the theoretical and methodological focus, Poulus and colleagues (2024) addressed methodological concerns regarding inconsistent definition of "elite" esports players across 63 studies. Therefore, authors introduced a systematic two-step classification system focusing on the competition level (regional to international), the performance success (from none to sustained), and experience (minimal to substantial), providing guidelines for greater transparency, consistency, and replicability in esports research.

These reviews collectively provide a sound overview of the current research areas and have helped advance our understanding of the unique characteristics of esports while highlighting potential avenues where traditional sports research could inform esports research and vice versa. First, they establish a foundational understanding of esport psychology, encouraging scholars to integrate traditional SEP theories into esports. Second, they synthesize research on the psychophysiological (e.g., stress, coping strategies, HRV) and cognitive (e.g., executive functions, decision-making) factors that can affect performance outcomes. Third, all reviews highlighted the current theoretical and methodological challenges, aligning with the recommendations to implement rigorous designs and suggesting guidelines. These suggestions are also directed to facilitate researchers and practitioners in tailoring and delivering standardized research protocols and interventions that can help maintain scientific rigor.

Finally, these 13 reviews reflect the rapid expansion of esports

research, underscoring its multifaceted nature. We observe a growing interest in esports' affective components—such as stress responses, motivation, and coping mechanisms—and their relationship to mental health and well-being. However, as esports continues to evolve, these reviews collectively point to the need for integration of theoretical frameworks, standardized methodologies, and more rigorous empirical work to advance the field.

3. Mapping the psychology of esports

We identified 125 papers in our literature search, enabling us to map current trends in esports research. In this section, we first present descriptive trends in esports psychology research, and then we show the topics trends in four sections, including (a) describing esports demands and players' characteristics, (b) group processes and training structure in esports, and (c) health and well-being in esports: integrating mental, physical, and behavioral factors.

3.1. Descriptive trends in esports psychology research

The 125 studies included were published in diverse peer-reviewed journals between 2020 and 2025 (for an overview of each study, see Supplemental File 6). Most of these studies were published in interdisciplinary journals, with the top journals including Frontiers in Psychology (8.1 %; $n = 10$), Computers in Human Behavior (5.6 %; $n = 7$), Case Studies in Sport and Exercise Psychology (4.8 %; $n = 6$), Psychology of Sport and Exercise (4 %; $n = 5$) (see Supplemental File 7). Together, these four journals reflect esports psychology's current interdisciplinary research focus and highlight esports research's increased acceptance and growth in SEP. This field development is evidenced by the increase in SEP-specific publications, while Pedraza-Ramirez et al. (2020) identified only one empirical study in SEP journal prior to 2020, our current review includes 18 empirical studies published in SEP-specific journals since 2020 indicating growing disciplinary acceptance (see Supplemental File 5).

The current methodological landscape has shown gradual yet notable development since 2020 by the frequent use of exploratory and descriptive studies and calls for more robust designs, greater ecological validity, and theoretical integration. Our analysis reveals a clear increase in the implementation of experimental designs (28.2 %, $n = 35$), reflecting growing efforts to test psychological interventions and causal relationships within controlled settings. Additionally, the growth of mixed-methods (8.1 %, $n = 10$) and qualitative research (14.5 %, $n = 18$) suggests broader methodological diversification; however, observational studies (44.4 %, $n = 55$) still dominate.

Regarding participants' demographics, the review reveals a significant underrepresentation of women and gender-diverse individuals in esports psychology research. Of the 125 studies reviewed, 44 (35.2 %) included only male participants, while two studies (1.6 %) focused exclusively on female participants, both published by the same research group. An additional 48 studies (38.4 %) reported including both male and female participants; however, in most these, male participants comprised the overwhelming majority of the sample, highlighting continued gender imbalance even in mixed-gender designs. Only nine studies (7.2 %) reported inclusion of individuals identifying as non-binary, trans, diverse, or other identities, while 22 studies (17.6 %) did not report any gender information.

Additionally, regarding the specific esports titles investigated, the most frequently researched were League of Legends (LoL; 42.7 %, $n = 53$), a multiplayer online battle arena (MOBA) and Counter-Strike: Global Offensive (CS:GO; 37.1 %, $n = 46$), a first-person shooter (FPS). Compared to the diverse research focus with limited focus on specific titles of the earlier review by Pedraza-Ramirez et al. (2020), the current research landscape shows a clearer concentration of research efforts around a few dominant titles. Also, SEP research is adapting to the evolving nature of esports by studying newer titles such as Valorant (11.3 %, $n = 14$; tactical FPS) and Rainbow Six Siege (9.7 %, $n = 12$; tactical FPS), which were not yet prominent in the 2020 review. However, a persistent issue is that a notable portion of the studies did not explicitly mention (12.1 %, $n = 15$) or specify (6.5 %, $n = 8$) the titles investigated, mirroring methodological concerns previously addressed.

Finally, the regional distribution highlights a global contribution from European, Oceanian, and North American countries, with significant contributions from Australia ($n = 16$), the United Kingdom ($n = 15$), Spain ($n = 13$), Germany ($n = 12$), and the United States ($n = 11$). Asian countries, including China ($n = 9$), were also represented, but to a lesser extent, highlighting the need for broader geographical representation in future SEP esports research (for single esports title publications and geographical distribution, see Supplemental File 8).

3.2. Describing esports demands and players' characteristics

The psychological characteristics and demands placed on esports players and coaches represent a complex interplay of affective, cognitive, motor and social processes that collectively influence performance and well-being. Since the foundational review by Pedraza-Ramirez et al. (2020), research has significantly advanced in theoretical clarity and methodological rigor, particularly regarding affective and cognitive-motor processes.

3.2.1. Affective processes in esports

Earlier esports research largely described general emotional experiences and coping mechanisms among players; however, as suggested for future work by Leis and Lautenbach (2020) in their review on psychophysiological stress responses in esports, current studies now employ robust methodological designs—including experimental, longitudinal, and psychophysiological methods—to illustrate mechanisms underlying stress, emotional regulation, and coping in competitive esports environments (Behnke et al., 2022; Leis et al., 2024; Sharpe et a., 2024a).

It may be helpful to clarify terminology here. Although stress responses and emotions are often treated as separate phenomena, both involve appraisals and whole-body reactions to psychologically relevant situations (Behnke et al., 2024; Troy et al., 2023). We use the terms "affective responses" and "affect regulation"—the latter being an umbrella term that includes coping, emotion regulation, and others (Troy et al., 2023)—because we believe they are central to optimizing performance.

Earlier work largely identified general sources of competitive anxiety and affective responses. However, recent studies have begun to delineate specific emotional states—both positive (e.g., excitement, amusement) and negative (e.g., stress, sadness, anger)—and the situations that elicit them, such as "clutch" plays, "deranking", or underperforming teammates (Behnke et al., 2021; Leis et al., 2024). Importantly, while casual or non-competitive gaming tends to produce relatively stable affect, competitive esports contexts amplify emotional responses, particularly among less experienced players, who report elevated anxiety and greater threat appraisals (Leis & Lautenbach, 2020; Sharpe et al., 2024b).

This shift toward more nuanced scenario-based affective analysis represents a meaningful evolution from earlier descriptive studies. These advancements have contributed to the growing recognition of esports within sport psychology, positioning it as a legitimate domain for investigating competitive stress, emotion regulation, and performance under pressure. In many ways, the emerging esports psychology literature not only expands but also refines core concepts from traditional sports psychology. For example, Poulus and Polman (2022) applied the cognitive-motivational-relational theory (CMRT) of stress and emotion to esports and identify key differences in coping processes. While athletes in traditional sports typically prioritize problem-focused coping to manage competitive stress, esports players tend to use both emotion-focused coping (e.g., down-regulating negative affect) and problem-focused coping equally. This dual emphasis may reflect the

unique psychological demands and digital environments of esports competition.

At the team level, research emphasizes that stressors related to team dynamics, such as communication issues and digital interactions, are equally impactful as performance stressors (Poulus et al., 2022a). This differs from traditional sport contexts, where performance-related stressors dominate (Nicholls et al., 2006). Esports teams rely heavily on remote communication, exacerbating misunderstandings and posing unique psychological challenges (Brain et al., 2024; Poulus et al., 2022a). Thus, targeted psychological interventions and structured training environments are increasingly recognized as essential for enhancing team cohesion and well-being.

Building on these conceptual differences, recent empirical studies have begun testing how specific affect regulation strategies, such as reappraisal, influence performance under pressure. For instance, players adopting challenge-type evaluations of performance achieved better outcomes (Behnke et al., 2020), while disrupted gaze behavior and anxiety predicted poorer performance among less experienced players (Sharpe et al., 2024b). These findings demonstrate that affective responses have direct performance implications and highlight esports as an ecological valid setting to explore emotion regulation under controlled yet competitive conditions (Behnke et al., 2022; Hase et al., 2025; Leis et al., 2023, 2024).

Psychophysiological research in esports has also evolved substantially, with recent studies leveraging the minimal physical movement required during gameplay to precisely monitor physiological markers like heart rate variability (HRV) and cardiovascular responses. These indicators have emerged as promising tools for assessing stress regulation and self-control, although more robust theoretical underpinning is needed (Hase et al., 2025; Welsh et al., 2023). A recent meta-analysis, for instance, revealed that cardiovascular challenge responses—characterized by increased cardiac output and reduced vascular resistance—correlate with superior performance outcomes in esports (Hase et al., 2025). This reflects a notable methodological advancement from earlier descriptive studies and aligns with call for more ecologically valid, theory-driven investigations in esports (Leis & Lautenbach, 2020). Furthermore, because all in-game player behaviors are digitally recorded, researchers can precisely link psychophysiological data to specific in-game moments, offering unprecedent opportunities to study real-time responses to performance stressors. This capability not only enhances our understanding of stress and recovery in esports but also holds potential to inform intervention design and advance psychophysiological research in traditional sports, particularly in understanding athlete reactions to critical errors or high-stakes competition (Didymus et al., 2021; García-Lanzo et al., 2020).

3.2.2. Cognitive and motor processes in esports

The investigation of cognitive and motor processes in esports has substantially advanced in recent years. Earlier studies offered general observations regarding the cognitive benefits linked to esports training. In contrast, recent work has focused on domain-specific assessments, providing clearer evidence for how cognitive-motor skills—such as decision making, cognitive flexibility, and sensory-motor integration—influence performance in competitive gaming context (Kim et al., 2023; Valls-Serrano et al., 2022). For example, cognitive flexibility has been positively associated with player rank in LoL, and decision-making abilities are directly reflected in specific in-game performance metrics (Valls-Serrano et al., 2022).

Recent studies have increasingly emphasized the complex, fast-paced, and uncertain environments that characterize esports competitions, associating expertise in esports with enhanced cognitive-motor skills comparable to those found in traditional sports context (Pedraza-Ramirez et al., 2025). For instance, expert LoL players must quickly process uncertain environmental information and accurately execute motor actions under pressure, underscoring the integrated cognitive-motor demands inherent to esports (Pedraza-Ramirez et al., 2025). Similar expertise effects have been observed in Dota 2 players who demonstrated superior decision making under ambiguity Sörman et al., 2022) and professional players who exhibit better anticipation timing and peripheral perception compared to amateurs (Kim et al., 2023). Kinematic analysis in first-person shooter esports further highlights that higher-skilled players possess superior motor planning and sensory-motor integration skills, developed through deliberate practice (Toth et al., 2023).

Furthermore, recent evidence underscores the necessity of shifting from generalized cognitive frameworks to esports-specific cognitive-motor assessments. Benoit et al. (2020), for instance, reported that professional players significantly outperformed amateurs in visual-spatial memory, selective attention, and auditory working memory tasks, highlighting domain-specific cognitive expertise. Importantly, recent methodological advancements, such as the Mobalytics Proving Ground™ assessment (Pluss et al., 2023) and kinematic analyses (Toth et al., 2023), represent notable developments toward rigorous, ecological valid evaluations of cognitive-motor skills.

3.2.3. Psychological skill training and interventions

Recent empirical research on psychological skills training in esports has notably advanced beyond generalized descriptions of stressors and demands toward targeted, evidence-based interventions addressing mental fatigue, emotion regulation, and performance pressure. Consistent with earlier recommendations (e.g., Leis & Lautenbach, 2022; Pedraza-Ramirez et al., 2020), contemporary work emphasizes the need for structured psychological training tailored explicitly to the unique demands of competitive esports (Bonilla et al., 2022; Cumming & Quinton, 2023; Valiente-Barroso et al., 2024).

Mental fatigue, in particular, emerges as a significant concern, with over 80 % of players reporting increased fatigue immediately following extended gameplay sessions (Luo et al., 2022). This fatigue not only impacts immediate performance but emphasizes the importance of structured interventions to manage cognitive and emotional demands over time (Poulus et al., 2023; Trotter et al., 2021). Coaches and sports psychologists could play a big role in mitigating these issues by creating more structured practice and implementing psychological skill training into their daily routines, as scholars have highlighted psychological skills (e.g., goal setting, imagery, mindfulness), and sociocultural elements that are important when participating and competing (Agrawal et al., 2024; Bonilla et al., 2022; Cumming & Quinton, 2023; Leis et al., 2023; Leis & Lautenbach, 2020; Valiente-Barroso et al., 2024).

Recent innovative methodologies, such as the constraint-led approach utilized by Bubna et al. (2024)—Where explicit player communication and vision were strategically restricted to enhance team coordination—demonstrate how manipulating the esports training environment can yield substantial improvements in performance and psychological skill acquisition. Thus, it opens new avenues for esports research and for using esports as a test bed for theories of interest in SEP.

Emerging models and frameworks further highlight multidimensional approaches, incorporating technical-tactical skills, psychological training, and healthy habits into cohesive, esports-specific interventions (Bonilla et al., 2022; Nagorsky & Wiemeyer, 2020). This integrative perspective emphasizes customizing psychological interventions according to the distinct competitive characteristics (e.g., remote versus onsite) and psychological demands of various esports titles. Collectively, these developments indicate a shift toward practical, evidence-based psychological skill training within esports, guiding both research and coaching practices to enhance player performance, resilience, and overall well-being.

3.3. Group processes and training structure in esports

There has been increased recognition to better understand the critical role of group processes and training models that can be adapted to specific esports' psychological and performance needs. Recent research

illustrates the rigorous demands of esports training schedules, with players reporting weekly practice volumes that match or exceed those found in traditional sports, typically ranging between 30 and 70 h (i.e., six to 10 h per day) (Carrani et al., 2022; Pedraza-Ramirez et al., 2024). Notably, however, unlike traditional sports, esports often lack professional oversight from trained coaches, sport psychologists, and structured programs, frequently resulting in unhealthy "grind culture" (see Abbott et al., 2022) characterized by excessive, self-managed practice routines (Horne et al., 2024; Leis et al., 2024; Watson et al., 2021). This has led researchers to advocate for integrating professionally structured training protocols and emphasizing effective load management and recovery practices to sustain long-term performance (Carrani et al., 2022).

Further studies have illuminated the complex social structures, multicultural dimensions, and career paths inherent to esports teams, highlighting the need for holistic talent development and integrated coaching models (Agrawal et al., 2024; Pedraza-Ramirez et al., 2024; Zhao et al., 2024). Despite the informal training background of many esports coaches (Watson et al., 2021), recent work suggests considerable potential to adopt structured methodologies from traditional sport contexts—such as periodization principles, multidisciplinary support systems, and intentional manipulation of the training environment—to further professionalize esports. This aligns closely with earlier calls (e.g., Wagstaff, 2019) for recognizing the interconnected roles of coaches, players, and organizational staff in shaping competitive success and player well-being.

3.4. Health and well-being in esports: integrating mental, physical, and behavioral factors

While mental and physical health are often treated as distinct domains, they are deeply interconnected in the context of esports. Esports players face a unique combination of psychological and physical demands due to the competitive pressures, extended training schedules, and sedentary nature of gaming. Factors such as sleep, fatigue, and recovery influence both cognitive-emotional functioning and physical readiness, requiring a holistic perspective to optimize player well-being and performance.

It is known that esports competition has historically centered around performance outcomes, however, current research has begun explicitly to explore mental health challenges facing players and coaches. Recent studies have provided robust empirical evidence highlighting significant mental health concerns, including burnout, loneliness, and metal fatigue (Luo et al., 2022, 2023; Poulus et al., 2024a).

Among these mental health concerns, burnout stands out as a critical concern in esports. Burnout, characterized by emotional exhaustion, reduced motivation, and diminished effectiveness, has been identified as a particularly prominent concern in esports (Poulus et al., 2024b). The "grind culture", with intense, repetitive training, amplifies these risks, potentially compromising long-term player health and career longevity (Abbott et al., 2022; Zhao et al., 2024). Thus, integrating principles from traditional sports science, such as structured training periodization and load monitoring, has been suggested as a valuable approach to mitigate burnout and sustaining player performance over time.

Beyond burnout, other psychosocial issues such as social isolation and loneliness have also emerged as important mental health issues. Luo et al. (2023), in a daily diary study, found that prolonged gaming sessions intensified loneliness, especially among players driven by obsessive passion or stress-coping motivations. Importantly, this negative outcome was mitigated by in-person gaming sessions with friends, underscoring the crucial role of meaningful social interactions in player well-being. This research indicates that promoting in-person social opportunities and promoting healthier motivational orientations could be valuable in addressing loneliness and improving overall psychological health.

Another key concern, closely linked to emotional and cognitive strain, is mental fatigue. Given the sustained attention, rapid decision making, and emotional regulation demanded by esports, mental fatigue is prevalent. Over 80 % of players report significant mental fatigue immediately following prolonged gaming sessions, with some players reporting lingering fatigue even 12 h post-gameplay. Luo et al. (2022) findings indicate the need for targeted interventions to manage that integrate cognitive training, education on healthy gaming habits, and scheduled breaks into regular routines to help manage fatigue effectively.

Recently, researchers have highlighted the essential role of structured recovery practices—such as mindfulness, scheduled rest periods, and evidence-based psychological interventions—to maintain player health and optimize long-term performance (Poulus et al., 2022b). Additionally, Brain et al. (2024) emphasized the importance of embedding sport psychology professionals within esports teams, highlighting that tailored, context-sensitive psychological support is essential for addressing the unique stressors of esports, including digital interactions and team dynamics.

While psychological interventions are crucial, growing attention has also turned to physical health as complementary pillar of overall well-being in esports. The physical health of esports players, closely intertwined with mental health, has received increasing attention due to players' demanding schedules and prolonged sedentary activity (Carrani et al., 2022; DiFrancisco-Donoghue et al., 2021). Recent research highlighted that key health behaviors—specifically physical activity, sleep quality, and nutrition—directly influence both cognitive performance and overall health in esports players (Białecki et al., 2024; Sainz et al., 2020; Smithies et al., 2024).

Sleep emerges as a fundamental factor negatively impacting cognitive and in-game performance. This, as esports training commonly reduces total sleep time, delays sleep patterns, and increases immediate post-session stress (Klier et al., 2022; Lee et al., 2021; Moen et al., 2022). Recent intervention studies, such as the brief sleep program by Bonnar et al. (2022), demonstrate practical improvements in sleep knowledge and reduced insomnia severity among players. Interestingly, despite worsened cognitive abilities after extended wakefulness, some players maintain performance, suggesting complex interactions between sleep deprivation, cognition, and esports-specific skills (Smithies et al., 2024).

Physical activity and nutrition have also received growing empirical attention. Building on the foundational work by Toth et al. (2020), recent studies have directly tested and provided evidence of the benefits of regular moderate-intensity aerobic activity, playful physical activity, and game performance (Dos Santos et al., 2024; Nicholson et al., 2024; Zhang et al., 2023). Although research into nutritional and dietary supplementation is still limited, initial evidence supports the performance-enhancing potential of caffeine supplementation (1–3 mg/kg) in specific esports context, notably improving reaction time, accuracy, and visual search in first-person shooting esports (Sainz et al., 2020; Wu et al., 2024).

Despite these encouraging developments, practical barriers remain. Bonilla et al. (2022) highlighted that esports players still commonly lack awareness or practical access to resources promoting proper nutrition, regular physical activity, and sleep hygiene. This underscores the ongoing need for tailored education and structured interventions to improve health behaviors. Such interventions should address esports-specific challenges, including screen time management, ergonomic, and nutrition strategies, to maximize both health and performance benefits.

4. Disciplinary considerations

The integration of esports in SEP raises important epistemological and disciplinary questions. Traditional SEP underlines physical activity, health promotion, and embodied performance, principles that may initially appear opposite to esports' screen-based sedentary nature. However, the recent developments presented in this review demonstrate

that esports can complement and expand SEP's theoretical and methodological applications.

First, esports allow researchers to test cognitive-motor theories and affect responses in controlled environments, allow for precise psychophysiological monitoring, and present new contexts for psychological skill training and mental health interventions. For example, research on cardiovascular challenge responses, eye-tracking, kinematics, and in-game analytics enables precise linking of psychological variables with observable performance outcomes. These technologies, alongside virtual environments and telemetry can refine theory testing in ways that are difficult to replicate in traditional sport contexts. In this sense, esports offer new ecological settings for experimental SEP research that maintain high control while preserving real-world performance pressure.

Second, findings from this review indicate a need to revisit and expand core concepts such as embodiment, performance, and health. While embodiment in SEP has traditionally emphasized physical movement and athletic exertion, digital competition introduces new forms of embodiment involving sensorimotor control, fine motor coordination, gaze behavior, postural regulation, cognitive workload, and virtual interaction. Similarly, performance in esports reflects not only mechanical skill but also psychological resilience, social coordination, and digital competence—some of which remain underexplored in SEP but increasingly relevant across domains.

Third, esports' mental and physical health demands—e.g., burnout, sleep disruption, sedentary behavior, and mental fatigue—underscore the need to adopt multidisciplinary and biopsychosocial perspectives in SEP. This shift aligns with recent trends in health psychology and performance science but also requires SEP scholars to engage with related disciplines like digital ergonomics, technology ethics, and media psychology. Therefore, the field must reconsider how performance enhancement can occur in environments where wellness is shaped as much by screen time, online culture, and social media visibility as by traditional training factors.

Finally, the rise of esports invites for a more reflective stance on inclusivity, access, and representation within SEP research. This review highlighted a notable overrepresentation of male and Western participants, alongside a limited focus on gender-diverse, LGBTQ+, and other underrepresented groups. As esports continue to grow globally and attract increasingly diverse populations, SEP researchers are well-positioned to lead the development of fair and inclusive research practices. This includes amplifying diverse voices and perspectives, promoting ethical digital engagement, and supporting coaching approaches that reflect a broader range of cultural and social identities.

Together, these considerations extend, rather than replace, SEP's disciplinary principles into greater theoretical relevance and applied versatility in contemporary digital contexts. This renegotiation of disciplinary boundaries enables SEP to remain relevant, forward-facing, and methodologically innovative as technology, participation, and competition continue to evolve across both physical and digital sport performance domains.

5 Limitations

While this rapid review offers a timely synthesis of emerging trends and advances in understanding the evolution of SEP in esports, it is important to acknowledge several limitations. First, although guided by PRISMA and rapid review principles, the search was limited to selected databases and English-language peer-reviewed journals. This likely resulted in the omission of relevant studies, particularly those published in newer or emerging esports journals such as *The Journal of Electronic Gaming and Esports* which is not yet indexed in the selected databases. However, we broadened our search scope and considered publications in interdisciplinary journals such as *Computers in Human Behavior, Scientific Reports, and Frontiers* that publish SEP related esports content. Second, inconsistencies in the reporting of demographic and esports game characteristics—such as gender diversity, performance level, cultural background, and type of esport—persist in the reviewed literature, limiting the interpretative and practical value of the findings (Kuss & Vadapalli, 2025; Pedraza-Ramirez et al., 2020). Third, despite the methodological advancements shown through this review, the field remains heavily reliant on cross-sectional and self-reporting designs, with relatively few longitudinal, experimental, or mixed-methods studies that could provide stronger causal insights. Finally, the conceptual overlap across SEP domains, such as stress appearing in both affective processes and health-related interventions (Sharpe et al., 2024a), created challenges in categorizing studies, reflecting the interconnected nature of psychological constructs in esports performance context. This highlights the need for greater theoretical clarity and consensus in future reviews.

6 Future directions

Looking ahead, we propose several avenues to advance research in esports psychology. First, we encourage researchers to adopt best-practice methodologies, including open science principles, to enhance transparency and rigor (Beauchamp, 2023). Next, we address the types of studies and collaborative efforts likely to yield meaningful insights, underscoring the need for stable funding models to support these initiatives. We then highlight the benefits of integrating emerging technologies to refine data collection and performance interventions. Finally, we emphasize the value of transdisciplinary collaborations bringing diverse expertise together—spanning data science, sleep medicine, nutrition, and more—to develop comprehensive strategies for esports player care.

We encourage researchers to continue studying esports players using state-of-the-art scientific methods. We encourage future researchers to adopt robust and transparent scientific methods, including pre-registered designs with predefined analysis plans, as demonstrated in recent studies (Behnke et al., 2024; Sharpe et al., 2024a). To complement the methodological advancements, future research should also prioritize greater diversity and representation in participant samples (Kuss & Vadapalli, 2025). The current overrepresentation of male and Western participants limits the generalizability and inclusivity of current findings. Expanding the research to include more gender-diverse, LGBTQ+, and culturally varied populations will not only reflect the global nature of esports participation but also ensure that future interventions, assessments, and theoretical frameworks are relevant and effective across context. Addressing this gap is essential for developing a more comprehensive and socially responsible body of esports psychology research.

Additionally, openly sharing analysis code and data can enhance the quality and credibility of findings while enabling more comprehensive and unbiased evidence synthesis. Then, the new esports-specific dataset, together with these already publicly accessible datasets (e.g., Behnke et al., 2025; Białecki et al., 2023; Melhart et al., 2022; Yang et al., 2018), will offer valuable resources for researchers who may lack direct access to high-level players or sufficient funding. By embracing these scientific practices, the field can further establish its scientific rigor and promote broader collaboration in esports research.

For the types of studies, we encourage further longitudinal and multi-lab studies (see Zentgraf et al., 2024) to investigate how esports demands evolve over competitive seasons and careers, including cross-cultural collaborations that explore how cultural differences influence team dynamics, communication patterns, and affective responses. Understanding these processes would be invaluable in a multinational esports environment (Brain et al., 2024). Such large-scale, collaborative efforts would not only clarify the developmental trajectory of esports players and their psychological adaptations (Mendoza et al., 2023; Brain et al., 2024) but also shed light on long-term health implications for those who begin competing early (Carrani et al., 2022; Luo et al., 2022). This area deserves attention as it will enable researchers to understand how the unique demands of esports evolve over time, inform

career development pathways, identify long-term psychological and physiological risks or benefits, and can serve as a foundation for the development of evidence-based interventions in this fast-changing competitive environment.

While most esports research has focused on players, future work should explore the roles and development of practitioners—including coaches, analysts, and sport psychologists—who play a critical role in shaping the team culture, communication, and performance environments (Pedraza-Ramirez et al., 2024; Watson et al., 2025). Understanding their needs and practices is important for designing comprehensive support systems and developing contextually informed interventions.

The development of evidence-based interventions and measurement tools tailored to esports is essential for accurately addressing digital competition's distinct cognitive, emotional, and physiological demands (Cottrell et al., 2019; Poulus et al., 2023;Bonilla et al., 2024). This is important because without context-specific tools and interventions, psychological support in esports risks being ineffective or misaligned with the actual demands players face—especially for practitioners entering the esports space who may lack domain-specific experience and must navigate its novel and unique challenges. While traditional sports psychology techniques provide a solid foundation, they require meaningful adaptations to fit the esports context, as demonstrated by the successful adaptation of a synergistic mindsets intervention (Yeager et al., 2022) for esports players (Behnke et al., 2024). This tailored approach, which incorporated esports-specific examples, player quotes, and consultation with esports experts, was positively received by participants. Future efforts should also focus on developing and validating assessment tools designed for esports' unique technological interface and virtual setting (Pedraza-Ramirez et al., 2020; Welsh et al., 2023).

Sustainable funding models are critical for advancing esports research, and major game developers—who often profit substantially from esports—could play a vital role. Companies like Valve and Riot Games, which benefit from the immense revenue generated by competitive gaming, have both the resources and the vested interest to invest in scientific investigations of esports. By supporting high-quality, independent research, these organizations can further legitimize and improve the competitive ecosystem and foster evidence-based interventions that enhance player well-being and performance over the long term.

We also encourage incorporating cutting-edge technologies into esports research to unlock new opportunities for optimizing player performance and well-being. Artificial intelligence and machine learning could analyze patterns in behavior, physiology, and performance to predict and mitigate psychological fatigue or stress-related declines. These tools may enable real-time monitoring systems that refine player and coach decision making (Pedraza-Ramirez et al., 2025; Welsh et al., 2023), supporting more tailored training protocols beyond one-size-fits-all approaches. Moreover, virtual and augmented reality training environments offer promising methods for developing psychological skills under controlled and high-pressure conditions (Bird, 2020; Lachowicz et al., 2024; Lemmens, 2023). Exploring the effectiveness of these technologies could transform how esports players prepare for competition. Additionally, esports-specific protocols are needed to assess team dynamics, given the distinct demands to understand virtual cohesion and collaboration (Poulus et al., 2022a; Swettenham & Whitehead, 2022).

Fostering multi-construct and interdisciplinary collaboration (Zentgraf et al., 2024) is another critical step for advancing esports research, as experts from fields like data science, sleep medicine, and nutrition can contribute specialized knowledge to enhance player well-being and performance. Data scientists, for instance, can help analyze vast and varied datasets to detect meaningful performance trends, while sleep researchers and nutritionists, together with psychologists, can develop targeted interventions to optimize recovery and reduce fatigue. Hosting multidisciplinary scientific events (Siuda et al., 2023, 2024) and having multidisciplinary scientific esports-oriented journals (e.g., *Journal of Electronic Gaming and Esports*; Hedlund, 2022) could stimulate dialogue among diverse stakeholders and facilitate the sharing of best practices, ultimately leading to more comprehensive care strategies for esports players. Lastly, since the conclusion of this review's search period (February 2025), several relevant studies have been published that may further support or extend our findings and should be considered in future investigations (e.g., Behlau et al., 2025; Drew et al., 2025; Dupuy et al., 2025; Eldadi & Tenenbaum, 2025; Watson et al., 2025).

7. Conclusion

Esports has evolved into a performance domain that both benefits from and contributes to the SEP literature. While established principles from traditional sports—such as psychological skills training and periodized or deliberate practice—offer a valuable foundation, their direct translation into esports is not always sufficient. The unique demands of esports, including constantly changing game mechanics, reliance on digital communication, public scrutiny through live streaming platforms, and the normalization of overtraining and sedentary behaviors, require specifically adapted approaches. As demonstrated in this review, tailored interventions that consider the technological, cognitive, and social realities of esports—such as digital stressors, screen-mediated communication, and performance feedback systems—are crucial to effectively support player development, health, and performance. Thus, the development of context-specific, evidence-based strategies is not only justified but necessary to advance the applied work of SEP in esports. Our review indicates a growing acceptance of esports in SEP journals, reflecting the academic recognition of its theoretical and practical relevance. Nevertheless, key challenges remain, including the necessity for a stronger theoretical presence, standardized methodologies, and strategies to ensure holistic player well-being. By embracing open science, clear research protocols, and collaborations with other disciplines, esports can continue to refine evidence-based practices that enhance esports performance and its players' mental and physical health. In turn, esports can grow its recognition as an innovative testing ground for SEP theories, advancing research and its application in this rapidly growing field.

CRediT authorship contribution statement

Ismael Pedraza-Ramirez: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Benjamin T. Sharpe:** Writing – review & editing, Writing – original draft, Methodology. **Maciej Behnke:** Writing – review & editing, Supervision, Conceptualization. **Adam J. Toth:** Writing – review & editing, Supervision. **Dylan R. Poulus:** Writing – review & editing, Writing – original draft, Supervision, Conceptualization.

Declaration of competing interest

The 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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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.

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Data availability

No data was used for the research described in the article.

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