**Psychology of Esports Special Issue: A Catalyst for Change**

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**Abstract**

The special issue on "Psychology of Esports: Breakdown under Pressure" represents a significant advancement in understanding the psychological aspects of competitive gaming. The collected works explore diverse topics including mental health, cognitive processes, performance factors, and practical applications in esports. Key findings highlight the high prevalence of mental health issues among professional players, the importance of cognitive training and visual attention, and the impact of communication styles on team performance. Theoretical frameworks are proposed for integrating performance psychology theories and understanding decision-making processes in esports. The research also examines psychophysiological stress responses and motivational factors influencing performance. Challenges in the field are identified, including the need for more robust theoretical foundations, improved ecological validity, and larger sample sizes. Future directions for research are suggested, emphasizing longitudinal studies, cross-cultural perspectives, and interdisciplinary approaches. The special issue underscores the rapid growth of esports psychology as a field and the critical need for evidence-based practices to support the health, well-being, and performance of esports athletes in an evolving competitive landscape.

*Keywords:* esports psychology, mental health, performance optimization

**Introduction**

The rapid growth and increasing professionalization of esports have led to a surge in academic interest in this field (Baker et al., 2024), particularly within the realm of psychology (e.g., Leis et al., 2024b; Poulus et al., 2024a; Trotter et al., 2023). Recognizing the need for rigorous, empirical research to support the development of esports as a competitive domain, the *Journal of Electronic Gaming and Esports* published a special issue focused on *"Psychology in Esports: Breakdown under Pressure."* This special issue aimed to address the evolving landscape of esports, exploring various psychological aspects that impact players, coaches, and organizations across all levels of competition.

The impetus for this special issue stemmed from the growing recognition of the importance of mental health, well-being, and performance psychology in esports (e.g., Smith et al., 2022; Sharpe et al., 2024). Recent years have witnessed a significant shift in attitudes among players, coaches, spectators, and organizations regarding the health and wellness of esports players. This shift has been driven by a combination of factors, including increased media attention, professional practice developments, and emerging research findings (e.g., Bányai et al., 2019; Rudolf et al., 2022). As a result, stakeholders in the esports ecosystem have begun to focus more intently on issues such as mental health, pressurised contexts, overall well-being, player longevity, and sustainability (e.g., Swettenham et al., 2024).

The importance of this special issue lies in its timing and focus. As esports continue to gain mainstream recognition and attract substantial investment, there is an urgent need for evidence-based practices to support the health, well-being, and performance of esports athletes (see Horne & Swettenham, 2024 for detailed discussion). By bringing together diverse perspectives, theoretical foundations, and methodologies, this special issue aimed to provide a comprehensive overview of the current state of psychological research in esports and identify critical areas for future investigation. As such, the accepted papers in this special issue represent a significant contribution to the field of esports psychology, addressing various aspects of performance, well-being, cognitive processes, and practical application in competitive gaming. Each paper offers unique insights and approaches, collectively advancing our understanding of the psychological dynamics at play in esports.

**Contributions**

The contributions in this special issue span a wide range of topics within esports psychology, from mental health and well-being to cognitive processes and performance factors. By examining these diverse aspects, the collected works provide a comprehensive view of the psychological landscape in competitive gaming (see Table 1 for accessible overview).

**Table 1**

Overview of Special Issue Submissions and Take-Home Messages

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| --- | --- | --- | --- |
| **Lead Author(s)** | **Title** | **Category** | **Quick Insight** |
| Birch | The Prevalence of Mental ill Health in Elite Counter-Strike Athletes | Mental Health and Well-being in Esports | Esports players face high mental health challenges; support is lacking. |
| Horne and Swettenham | Towards a Comprehensive Professional Philosophy in Performance and Wellbeing Psychology | Theoretical Foundations and Practical Applications | A new framework integrates performance and well-being in esports. |
| Maier | The RPM Model: A Proposed Theoretical Hierarchy of Decision-Making in Competitive Environments | Theoretical Foundations and Practical Applications | The RPM Model aims to enhance decision-making strategies for esports players. |
| Zakalski | Preliminary Insight on Cognitive Training for Improved Outcomes in Elite Female Esports Athletes | Cognitive Processes in Esports | Targeted cognitive training improves essential skills for female FPS esports players. |
| Hampshire and Tyndall | Effect of Target Differentiation, Prioritization, and Environmental Clutter on Quiet Eye Duration in First Person Shooter Esports | Cognitive Processes in Esports | Environmental clutter and target prioritization affect visual attention in esports. |
| Nolla | Affect and Performance across Double-Elimination Tournaments: A Field Study of Super Smash Bros Competitors | Performance in Context | High arousal negatively impacts esports performance, highlighting the need for emotion regulation. |
| Obine | Motivation Mediating the Relationship Between Needs and Performance in Professional Esports Athletes | Performance in Context | Emphasizes competence and intrinsic motivation for esports performance. |
| Leis | Exploratory Study of Psychophysiological Stress in Esports: Training and Competition in Professional League of Legends | Performance in Context | Psychophysiological stress responses during competition affect esports performance, highlighting mental prep importance. |
| Maier | Talking to Win: The Impact of Communication on Performance in Esports | Performance in Context | Declarative communication improves esports team performance and coordination under pressure. |
| Horne | Should aspiring esports psychologists train in esports? Reflections of trainee sport and exercise psychologists | Reflections | Aspiring esports psychologists face barriers of alienation, financial challenges, and rapid industry change. |

***Mental Health and Well-being in Esports***

One of the most pressing concerns in esports, and highlighted in this special issue, is the mental health and well-being of players. The study by Birch et al. (2024) provides a crucial baseline understanding of mental health issues among professional esports players (classified as Elite; as per Poulus et al., 2024b). This study is particularly significant as it is the first to examine mental ill health and mental well-being specifically in professional Counter-Strike players. The findings reveal alarmingly high rates of mental health issues, with 25.5% of participants reporting moderately severe or severe symptoms of depression, 82.4% reporting symptoms of anxiety/depression, and 54.9% indicating psychological distress. Perhaps most concerning is that 72.5% of the sample reported low mental well-being. These results are particularly striking when compared to both the general population and traditional sports athletes. The prevalence of moderately severe and severe depression (25.5%) far exceeds the 7.6% found in a large U.S. general population sample and the 18.3% reporting moderate to severe depression in Swedish elite traditional athletes. This disparity highlights the urgent need for mental health support and interventions specifically tailored to the esports community.

Importantly, Birch et al.'s study also reveals a significant gap between the prevalence of mental health issues and the availability of support. Only 13% of participants reported being offered mental health support by their current or former professional teams, while 68.6% reported not being offered such support. This finding underscores the critical need for increased mental health resources and support systems within professional esports organizations. The study's use of both clinical measures of mental ill health and assessments of mental well-being provides a comprehensive picture of the participants' mental states. This approach aligns with recent calls in the field to examine both the presence of mental health symptoms and overall well-being to gain a more holistic understanding of athletes' mental health. By doing so, Birch et al. have set a new standard for mental health research in esports, emphasizing the importance of considering both clinical symptoms and overall well-being in future studies.

***Theoretical Foundations and Practical Applications***

Building on the concerning data laid by Birch et al., Horne and Swettenham (2024), presents a theoretical framework for integrating performance psychology theories and interventions. This paper addresses a critical gap in the field by proposing a coherent model of practice grounded in a theory of behaviour, specifically functional contextualism and relational frame theory (Hayes et al., 1999; Hayes et al., 2001). Horne et al.'s model is particularly valuable as it aims to improve both performance and well-being simultaneously, rather than prioritizing performance at the expense of well-being. This approach is especially relevant given the high prevalence of mental health issues identified by Birch et al. (2024) in professional esports players. By emphasizing psychological flexibility and the acceptance of negative thoughts and emotions, the model provides a framework for developing interventions that can enhance performance while also supporting mental health and well-being. The authors' integration of various theories and interventions from performance psychology into a structured framework offers practitioners a comprehensive toolkit for working with esports athletes. By categorizing approaches into relational frames, behaviour, and environment (both external and internal), Horne et al. provide a clear roadmap for understanding how different interventions can work together synergistically. This integration is particularly important in the context of esports, where the rapid pace of competition and the unique stressors of the digital environment require a flexible and multifaceted approach to performance enhancement and well-being support. Moreover, Horne et al.'s incorporation of psychophysiological theory, particularly the hierarchical neurovisceral integration model, adds an important dimension to their framework. By considering the interplay between psychological interventions and physiological processes, the model offers a more holistic approach to performance enhancement in esports. This integration is particularly relevant given the sedentary nature of esports competition and the potential impact of physiological factors on cognitive performance and overall well-being.

From a different perspective, Maier et al. (2024a) introduces a novel framework for understanding and training decision-making processes in esports. The React-Predict-Manipulate (RPM) Model offers a structured hierarchy of cognitive processes that progress from instinctual reactions to strategic foresight and tactical manipulation. This model is particularly valuable in the context of esports, where split-second decisions can often determine the outcome of a match. Maier et al.'s RPM Model builds upon existing cognitive psychology and decision theory literature (e.g., Schwarz, 2000), providing a theoretical foundation for understanding the complex decision-making processes involved in esports competition. By delineating three distinct levels of decision-making - React, Predict, and Manipulate - the model offers a framework for analysing gameplay strategies and developing more effective training regimens. The application of the RPM Model to esports, as demonstrated through a case study from the Overwatch League, illustrates how professional players progress through these decision-making levels as they gain experience and expertise. This progression from reactive to predictive, and finally to manipulative approaches, aligns well with observed patterns of skill development in other domains, suggesting that the model may have broader implications for understanding expertise acquisition in various fields. One of the key strengths of Maier et al.'s work is its potential for practical application in esports training and coaching. By providing a structured approach to understanding decision-making processes, the RPM Model can guide the development of targeted training programs aimed at enhancing players' cognitive skills and strategic thinking. This is particularly important in the context of esports, where cognitive performance is paramount and traditional physical training methods may be less relevant. Furthermore, the RPM Model's emphasis on the progression from reactive to manipulative decision-making aligns well with the concept of psychological flexibility proposed by Horne and Swettenham (2024). Both frameworks emphasize the importance of adapting behaviour to the current context and proactively shaping the competitive environment. This convergence of theoretical approaches suggests a promising direction for future research and practical interventions in esports psychology.

***Cognitive Processes in Esports***

Two papers in this special issue focus on the cognitive processes involved in esports, particularly highlighting cognitive training interventions and visual attention, with a specific focus on First-Person Shooter (FPS) games. Zakalski et al. (2024) presents a preliminary study on cognitive training interventions for professional female esports athletes, focusing on players of First-Person Shooter (FPS) games. This research is crucial as it addresses the gender disparities and underrepresentation of women in esports, contributing to both gender equity and the nascent field of cognitive profiling for esports athletes. The study consists of two parts: the first compares cognitive performance markers between male and female professional FPS players, finding that action reprogramming and inhibitory control are essential cognitive abilities for FPS success. The second part involves a five-month cognitive training intervention using a light board task, which led to significant improvements in the subject team's cognitive performance, particularly in Action Reprogramming (AR) tasks. These results suggest that targeted cognitive training can enhance specific abilities crucial for esports performance and potentially help close gender-related performance gaps. The research also introduces a non-computerized cognitive training method, offering alternatives to traditional practice, particularly beneficial for women who face systemic barriers and limited access to high-quality training (Madden et al., 2021; Paaßen et al., 2017). Although the study has limitations, including a small sample size and lack of control groups, it provides a foundation for future research on the cognitive demands of esports and the development of training protocols. The findings could inform more effective training strategies, especially for underrepresented groups in esports, and highlight the need for further research with larger samples and more diverse esports demographics to validate and expand on these results.

Hampshire and Tyndall (2024) explore the application of the quiet eye (QE) phenomenon to esports, specifically focusing on FPS games. This study represents an important step in bridging the gap between traditional sports psychology and esports, examining how esports-specific variables such as environmental clutter, target differentiation, and target prioritization impact QE duration. While the study's small sample size limited its statistical power, the observed trends suggesting that environmental clutter and target prioritization may influence QE duration provide valuable insights for future research. These findings align with previous unpublished work by Krajník (2022), indicating that the performance-enhancing effects of QE might not extend to scenarios involving multiple targets - a common situation in many esports contexts. Hampshire and Tyndall's work is particularly valuable in its methodological approach, demonstrating how established research paradigms from traditional sports can be adapted to esports contexts. By using a head-mounted eye tracker to record gaze behaviour during FPS-inspired tasks, the authors have set a precedent for future studies seeking to examine visual attention and motor preparation in esports athletes. Furthermore, this research contributes to the broader discussion about cognitive load and attention in high-pressure performance scenarios. The authors' reference to Attentional Control Theory (Eysenck et al., 2007) provides a theoretical framework for understanding how cognitive resources are allocated between stimuli-directed and goal-directed systems in esports contexts. This approach complements the work of Maier et al. (2024a) on decision-making processes in esports, offering another perspective on the cognitive demands faced by competitive gamers.

***Performance in Context***

Understanding the factors that drive performance in esports is crucial for developing effective training and support strategies. Across this special issue, a broad range of perspectives were implemented to investigate this topic. Nolla et al. (2024) explores the relationship between affect, particularly self-reported arousal and valence, and performance in Super Smash Bros esports tournaments. This field study of 90 competitors across four tournaments examined how psychological factors like arousal, performance pressure, and self-focus influence competitive outcomes. Using multivariable mixed-effects logistic regression, the researchers found that higher pre-set arousal was associated with a 9% decrease in winning odds, indicating that heightened arousal negatively impacts performance. However, pre-set valence, or mood positivity, did not significantly affect outcomes, although competitors felt worse after losing, especially when skill levels were similar to their opponents. Contrary to the hypothesis, arousal did not mediate the relationship between performance pressure and outcomes, though post-hoc analysis suggested that perceived pressure may play a role. Self-focus was also not found to mediate the arousal-performance link. Additionally, the study found a negative "spillover effect," where competitors who played more sets than their opponents were more likely to lose, but no consistent evidence for the "shadow effect," where anticipation of a strong opponent hampers current performance. The study's findings align with prior research indicating high arousal levels before competition in esports (e.g., Ding et al., 2018; Schmidt et al., 2020) and highlight the need for emotion regulation skills to optimize arousal for peak performance. Authors note that while physiological stress is necessary for optimal performance, excessive arousal can hinder attention and motor skills. The research's strengths lie in its ecological validity and comprehensive analysis of psychological and structural factors in real-world tournaments, although limitations such as retrospective measurements and single-item constructs constrain causal conclusions. Overall, the study advances esports psychology by linking affect and performance, offering practical insights for competitors and coaches to enhance performance under pressure.

Obine (2024) applies Self Determination Theory to the esports context, providing valuable insights into the psychological factors driving performance in competitive gaming. By examining the relationships between psychological needs, motivation, and performance in professional esports athletes, Obine's work contributes to the growing body of literature seeking to understand the unique psychological dynamics of esports competition (e.g., Fox et al., 2018; Reer & Krämer, 2018). Obine's findings, which reveal significant mediating effects of intrinsic and introjected motivations on the relationship between competence needs and performance, align well with previous research in both esports and traditional sports. These results suggest that fostering competence and intrinsic motivation could be crucial for improving esports performance, offering practical implications for coaching strategies and training programs at various competitive levels. The application of Self Determination Theory to esports is particularly valuable as it provides a theoretical framework for understanding athlete motivation and performance in this unique context. This approach complements the work of Horne et al. (2024a) and Maier et al. (2024) by offering an additional lens through which to view psychological processes in esports. Together, these theoretical frameworks provide a robust foundation for future research and practical interventions in esports psychology. Moreover, Obine's use of objective performance measures (time trial and shooting accuracy) rather than relying solely on self-reported performance or playtime metrics represents an important methodological advancement in esports research. This approach, as suggested by Sharpe et al. (2022), provides a more nuanced evaluation of esports skill and sets a standard for future studies seeking to measure performance in competitive gaming contexts.

Leis et al. (2024a) presents an important exploratory study examining psychophysiological stress responses in professional esports players during training and competition. Applying the Model of Neuroendocrine and Mood Responses to a Competitive Situation (Salvador & Costa, 2009) to League of Legends players, the study addresses a critical gap in the literature by investigating both psychological and physiological stress responses in professional esports players during training and official competitive gameplay. The research involved seven professional players, measuring perceived stress, affect, emotions, heart rate (HR), heart rate variability (HRV), and respiratory rate (RR) at multiple time points before, during, and after both training and competitive matches. The study's findings partially supported the authors' hypotheses, revealing that motivation and perceived match importance were significantly higher in competition compared to training. Perceived stress was significantly higher in the competitive group approximately 37 minutes before gameplay, and heart rate was generally higher during competition compared to training, especially during and after gameplay. Interestingly, the study found few significant differences in affect between training and competition, with higher levels of pleasure reported during competition. This trend was also reflected in RMSSD. The research also uncovered significant correlations between anxiety levels and gameplay performance, with anxiety negatively correlating with kills and assists. These results contribute to our understanding of stress in esports by demonstrating that professional players do experience heightened psychological and physiological stress responses during competition compared to training. This aligns with theoretical frameworks like Salvador and Costa's (2009) model and empirical evidence from traditional sports research. The study's findings highlight the importance of cognitive appraisal in shaping pre-competition stress responses in esports, suggesting that the stress-performance relationship in esports may operate similarly to traditional sports, despite the unique cognitive and motor demands of esports. The findings underscore the importance of pre-competition mental preparation, potentially including strategies such as self-talk, imagery, pre-performance routines, breathing techniques, or reappraisal and mindset interventions. The authors suggest that monitoring psychophysiological stress parameters could facilitate continuous performance optimization, and that a longitudinal approach could help identify individual stress response patterns and inform training and competition strategies.

Maier et al. (2024b) examines how communication styles affect team performance, specifically focusing on university-affiliated Overwatch teams. The study is significant for addressing an underexplored aspect of esports—team communication—and its role in coordination and effectiveness, with implications beyond gaming, including in healthcare, sports, and military operations. The research involved 10 university teams and 43 participants, with two scrimmages separated by an intervention teaching declarative and informative communication strategies. Following the intervention, the use of declarative communication increased significantly, while informative communication decreased. These shifts were attributed to improve players' perceptions of response speed and team performance, aligning with earlier studies highlighting the challenges of communication in high-pressure environments (Musick et al., 2021). The researchers refined the concept of instrumental communication, integrating ideas of "directive" communication (Cheung et al., 2012) and "generalizations" (Coon et al., 2023), which revealed how specific strategies enhance performance. The study hypothesized that higher declarative communication would improve team mental models and performance, supported by qualitative insights where players reported streamlined decision-making, aligning with the Hick-Hyman Law (Hyman, 1953). Despite the small sample size and self-reported data, the findings suggest that declarative communication reduces cognitive load and enhances team coordination. The implications extend to other high-stakes environments, offering a foundation for future research and practical applications. Ultimately, Maier et al. (2024b) provide empirical evidence that declarative communication improves esports team performance and offer insights applicable to fields requiring rapid, accurate communication, advancing both esports research and broader communication studies.

***Reflections***

A critical perspective piece by Horne et al. (2024) provides a unique perspective on the challenges and opportunities faced by trainee practitioners entering the field of esports psychology. This autoethnographic study offers valuable insights into the experiences of those at the forefront of this emerging discipline, highlighting both the potential for pioneering work and the significant barriers that must be overcome. Horne et al.'s identification of four main themes - opportunities, alienation, esports time, and financial barriers - provides a nuanced understanding of the current landscape for aspiring esports psychologists. The opportunities' theme highlights the accessibility of esports for practitioners and the potential for innovative work in a developing field. This aligns well with the theoretical frameworks proposed by Horne and Swettenham (2024) and Maier et al. (2024a), suggesting that there is ample room for creative application of psychological principles in the esports context.

The challenges identified by Horne et al. (2024) are equally important to consider. The alienation theme, which explores difficulties in online communication and issues related to hegemonic masculinity in esports, underscores the need for greater awareness and inclusivity within the industry. These findings complement the work of Birch et al. (2024), suggesting that the mental health challenges faced by professional players may be exacerbated by broader cultural issues within the esports ecosystem. The esports time theme, which addresses the rapid pace of change in the industry including frequent roster changes, highlights the need for flexible and adaptive approaches to psychological support in esports. This aligns well with the emphasis on psychological flexibility proposed by Horne and Swettenham (2024) and the adaptive decision-making processes outlined in Maier et al.'s (2024a) RPM Model. Together, these findings suggest that successful psychologists working in esports will need to develop strategies for providing effective support within the unique temporal constraints of the esports industry. Perhaps most critically, the financial barrier's theme identified by Horne et al. (2024) raises important questions about the sustainability of current training models in esports psychology. The culture of unpaid work for trainees, exacerbated by poor payment practices within the esports industry, presents a significant obstacle to the development of a diverse and well-trained cohort of esports psychologists. This finding underscores the need for greater professionalization and ethical standards within the field, echoing calls from other researchers for more structured and supportive approaches to practitioner development in esports psychology.

**Challenges**

While the special issue on "Psychology in Esports: Breakdown under Pressure" represents a significant step forward in esports psychology research, it also highlights several challenges and limitations within the field. One of the primary concerns is the lack of novelty in many research approaches. Despite the unique nature of esports, researchers often rely heavily on theories and methodologies borrowed from traditional sports psychology, without sufficiently adapting them to the digital competitive environment. This tendency to apply existing frameworks without critical examination may lead to oversimplified or misaligned conclusions about the psychological processes at play in esports. Likewise, a significant challenge is the general lack of robust theoretical foundations in many esports psychology studies. While some papers in this issue, such as Horne and Swettenham (2024) and Maier et al. (2024a), propose theoretical frameworks, many practitioners in the field operate without a solid theoretical basis for their interventions. This absence of theory-driven practice not only limits the effectiveness of psychological support for esports athletes but also hinders the development of a cohesive body of knowledge in the field.

The issue of ecological validity also emerges as a significant concern. Many studies in esports psychology, including some in this special issue, rely on laboratory-based experiments or self-report measures that may not accurately reflect the complex, high-pressure environments of professional esports competition. While studies like Leis et al. (2024a) attempt to address this by measuring physiological responses during actual gameplay, there is still a pressing need for more research conducted in authentic competitive settings. Furthermore, the field of esports psychology often struggles with small sample sizes and limited diversity in research participants. This issue is evident in several studies within the special issue, potentially limiting the generalizability of findings across different games, skill levels, and cultural contexts. The predominant focus on professional or high-level players, while valuable, may overlook important psychological factors affecting amateur or recreational players, who make up much of the esports community.

Another critical challenge is the rapid pace of change within the esports industry. As highlighted by Horne et al. (2024), the fast-moving nature of esports often outpaces academic research, leading to a disconnect between scholarly work and industry needs. This disconnect is further exacerbated by the financial barriers and unpaid work culture prevalent in the field, which may deter talented researchers and practitioners from entering or remaining in esports psychology. Lastly, there is a notable lack of integration between psychological research and other relevant disciplines in esports, such as computer science, game design, and sports medicine. This siloed approach limits the potential for holistic understanding and intervention in esports performance and well-being. As the field matures, there is a critical need for more interdisciplinary collaboration to address the complex, multifaceted nature of esports competition. Addressing these challenges will be crucial for the continued development and credibility of esports psychology as a field. Future research must strive for greater methodological rigor, theoretical grounding, and practical relevance to truly capture and support the unique psychological demands of competitive gaming.

**Looking Forward**

The papers in this special issue collectively represent a significant advancement in our understanding of the psychological aspects of esports. They highlight the complex interplay of mental health, motivation, cognitive processes, communication, and training in shaping performance and well-being in competitive gaming. As we look to the future of esports psychology research, several key directions emerge. There is a need for more longitudinal studies that track the psychological development of esports athletes over time, providing insights into how factors such as motivation, mental health, and cognitive skills evolve throughout an athlete's career. Cross-cultural research becomes increasingly important as esports continues to grow globally, with future studies aiming to include diverse populations and explore potential cultural differences in esports psychology. While several papers in this issue propose theoretical models or training approaches, there is a need for more empirical studies testing the effectiveness of specific interventions in improving performance and well-being in esports athletes. Future research should continue to explore the integration of physiological measures with psychological assessments to provide a more comprehensive understanding of performance in esports (e.g., heart rate variability, see Welsh et al., 2023 for a review). As technology continues to evolve, researchers should explore how new tools and methods, such as virtual reality and advanced eye-tracking, can be used to study psychological processes in esports more effectively. As the field of esports psychology grows, it is crucial to develop and refine ethical guidelines for research and practice, with future studies addressing ethical issues related to performance enhancement, data privacy, and the well-being of athletes. Finally, collaboration between esports psychology researchers and experts from other fields could lead to innovative approaches and insights, emphasizing the importance of interdisciplinary approaches in advancing the field. The rapid growth of esports presents both challenges and opportunities for psychological research. As the field continues to evolve, it is crucial that research keeps pace with the changing landscape of competitive gaming. The studies in this special issue provide a strong foundation for future work, highlighting the importance of rigorous, empirical research in developing evidence-based practices to support the health, well-being, and performance of esports athletes.

**Measurement and Methodological Considerations**

The studies presented in this special issue highlight both the progress and limitations in current esports psychology research methodologies. While traditional self-report measures and qualitative approaches have provided valuable insights, there is a pressing need to advance our measurement techniques to match the unique technological nature of esports. The digital environment of esports presents unprecedented opportunities for data collection and analysis that remain largely unexploited in current research. For example, the integration of in-game telemetry data with psychological measures represents a significant opportunity. Unlike traditional sports, esports generate vast amounts of behavioural data during gameplay, including mouse movements, keystrokes, eye movements, and decision-making patterns. These data streams could be synchronized with psychological and physiological measurements to provide more comprehensive insights into performance under pressure. For instance, analysing changes in mouse movement precision or action-per-minute (APM) rates in relation to physiological stress markers could reveal how pressure impacts fine motor control and decision-making in real-time.

Second, the field would benefit from standardizing performance metrics across different game genres. While some of the above studies have made important strides in measuring specific aspects of performance, the lack of standardized performance metrics makes cross-study comparisons challenging. The development of validated, game-specific performance indices that account for both individual and team performance would significantly advance our ability to conduct meaningful meta-analyses and establish broader patterns in esports psychology. Likewise, the temporal resolution of our measurements needs refinement. Many studies in this special issue rely on pre-post designs or retrospective assessments. However, the rapid pace and dynamic nature of esports competition suggest that important psychological processes may operate on much shorter timescales. The development of real-time assessment techniques that don't interfere with gameplay could provide more nuanced insights into the moment-to-moment psychological experiences of esports athletes. Finally, there is a need to develop more ecologically valid experimental paradigms. While laboratory studies offer control, they often fail to capture the complex social, competitive, and technological aspects of actual esports competition. The development of standardized competitive scenarios that maintain experimental control while preserving the essential characteristics of esports competition could help bridge this gap. Such paradigms could be particularly valuable for studying phenomena like team communication, decision-making under pressure, and attention allocation in multi-task environments. These methodological considerations are not merely technical issues but fundamental challenges that need to be addressed to advance our understanding of psychological processes in esports. As the field matures, the development of more sophisticated and appropriate measurement techniques will be crucial for building a robust empirical foundation for esports psychology research.

**Conclusion**

The "Psychology in Esports: Breakdown under Pressure" special issue marks a significant milestone in the field of esports psychology. It brings together diverse perspectives, methodologies, and findings that collectively advance our understanding of the psychological dynamics in competitive gaming. As esports continues to grow and professionalize, the insights provided by these studies will be invaluable in shaping the future of the industry and supporting the next generation of esports athletes and practitioners. The field of esports psychology is still in its early stages, and there is much work to be done. However, the quality and diversity of research presented in this special issue demonstrate the potential for significant advancements in our understanding of human performance and well-being in digital competitive environments. As we move forward, it is crucial that researchers, practitioners, and stakeholders in the esports industry continue to collaborate and innovate, working towards a future where the psychological needs of esports athletes are fully understood and supported.

**Author Note**

As a cognitive psychology researcher, I (the lead author) acknowledge my inherent bias towards viewing esports through the lens of information processing, attention, and decision-making, while recognizing that this perspective may overshadow other crucial aspects such as emotional regulation, social dynamics, and cultural influences. Recognizing this potential bias, I advocate for a more comprehensive approach in esports psychology research, emphasizing the integration of objective measures derived from cognitive psychology and neuroscience. The incorporation of technologies such as eye-tracking, pupillometry, neuroimaging (EEG and fNIRS), and psychophysiological measures offers significant benefits for both research and applied practice in esports, providing invaluable insights into visual attention patterns, cognitive load, neural activity, team coordination, and stress responses during gameplay. For practitioners, this data facilitates the development of targeted training programs to enhance players' visual search strategies, information processing, and cognitive resource management (e.g., neurofeedback). These technologies could enable the creation of personalized mental training protocols, aiding players in regulating brain activity, enhancing focus, reducing performance anxiety, and improving cognitive endurance during extended tournaments. The importance of adopting more objective measures in esports psychology cannot be overstated, as they can complement subjective approaches, offering a more comprehensive and reliable understanding of the psychological processes involved in esports performance.

It's crucial to note that the adoption of these methods should not come at the expense of ecological validity. The challenge lies in developing experimental paradigms that incorporate these objective measures while still capturing the complexity and dynamism of real-world esports competition, as opposed to over-reliance on tasks that may or may not hold the promise of near or far transfer (e.g., aim trainers). This may require innovative approaches, such as the development of custom game scenarios that allow for controlled manipulation of variables while maintaining the essential characteristics of competitive play. As such, while acknowledging my own cognitive psychology bias, I believe that the integration of objective measures from cognitive psychology and neuroscience, combined with existing qualitative and self-report methods, represents a crucial next step for esports psychology research. This approach has the potential to significantly advance our understanding of the cognitive, neural, and physiological processes underlying esports performance. As the field continues to evolve, it is my hope that more researchers will embrace these methodologies, leading to more robust, replicable, and impactful studies that can truly capture the unique psychological demands of competitive gaming. Furthermore, the practical applications of these technologies for applied practitioners underscore their potential to revolutionize training methods, performance optimization strategies, and player development in the esports industry, while also helping to establish esports psychology as a rigorous scientific discipline that could attract more funding and resources to the field.

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