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Mental Clarity in Esport: Examining the Relationship Between Cognitive Insight and Mindfulness

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ABSTRACT

Objective: This study aims to investigate the relationship between cognitive insight and mindfulness in esports players. **Materials and Methods:** This cross-sectional study was conducted using an online survey method with 398 participants who actively play esports across Türkiye. The dependent variables of the study are cognitive insight and mindful awareness, while the independent variables are age, gender, game type and esports history. The data were collected using a sociodemographic form, the Beck Cognitive Insight Scale (BCIS), and the Mindfulness Scale (MS), and DFA and correlation analyses were applied. The analysis of the data was conducted utilizing the SPSS 30.0 software. **Results:** The results showed that mindfulness was positively correlated with self-expression ($r=0.613$), self-confidence ($r=0.456$), and cognitive insight ($r=0.342$). Cognitive insight was strongly associated with self-expression ($r=0.704$) but negatively correlated with self-confidence ($r=-0.175$) (all $p<0.001$). **Conclusion:** The findings demonstrate that, in addition to technical competencies, psychological attributes such as cognitive insight and mindfulness play a substantial role in differentiating high-performing esports players.

Keywords: Esport, Mindfulness, Cognitive Insight.

Esporda Mental Netlik: Bilişsel İlgörü ve Farkındalık Arasındaki İlişkinin İncelenmesi

ÖZ

Amaç: Bu çalışma, espor oyuncularında bilişsel ilğörü ve farkındalık arasındaki ilişkiyi araştırmayı amaçlamaktadır. **Gereç ve Yöntem:** Bu kesitsel çalışma, Türkiye genelinde aktif olarak espor oynayan 398 katılımcıyla çevrimiçi anket yöntemi kullanılarak gerçekleştirilmiştir. Çalışmanın bağımlı değişkenleri bilişsel ilğörü ve farkındalık, bağımsız değişkenleri ise yaş, cinsiyet, oyun türü ve espor geçmişidir. Veriler, sosyodemografik form, Beck Bilişsel İlgörü Ölçeği (BCIS) ve Farkındalık Ölçeği (MS) kullanılarak toplanmış ve DFA ve korelasyon analizleri uygulanmıştır. Verilerin analizi SPSS 30.0 yazılımı kullanılarak yapılmıştır. **Bulgular:** Sonuçlar, farkındalığın kendini ifade etme ($r=0.613$), özgüven ($r=0.456$) ve bilişsel ilğörü ($r=0.342$) ile pozitif korelasyon gösterdiğini ortaya koymuştur. Bilişsel ilğörü, kendini ifade etme ile güçlü bir şekilde ilişkili ($r=0.704$) ancak özgüven ile negatif korelasyon göstermiştir ($r=-0.175$) (tümü $p<0.001$). **Sonuç:** Bulgular, teknik yetkinliklerin yanı sıra bilişsel ilğörü ve farkındalık gibi psikolojik özelliklerin de yüksek performanslı esporcuları ayırt etmede önemli bir rol oynadığını göstermektedir.

Anahtar Kelimeler: Espor, Bilinçli Farkındalık, Bilişsel İlgörü.

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INTRODUCTION

Being central to emotions, thoughts, and behaviours that aim to give meaning and value to human experience, insight is considered one of the fundamental building blocks of human psychology (Beitel et al., 2005). It is essential to clarify the concept of insight before exploring the concept of cognitive insight, as the former forms the basis for understanding the latter. The term “insight” might be defined as a multifaceted form of awareness that includes metacognitive skills that enable individuals to identify and correct their misperceptions about past, present and future events (Beck et al., 2004; Jacob, 2016). In contrast, insight is defined as an individual's capacity to comprehend their own internal dynamics, the challenges they are confronted with, and the gravity of these challenges. Studies in the literature have shown that most people with psychotic disorders have weak insight (X. F. Amador et al., 1993; McEvoy et al., 1981).

The contemporary viewpoint draws parallels between the notions of clinical and cognitive insight within the overarching frameworks of these two distinct concepts. Clinical insight reflects an individual's understanding of various aspects of their psychiatric diagnosis or their acceptance of this diagnosis (Phalen et al., 2015). Beck & Warman (2004) introduced the concepts of “clinical insight”, which refers to the traditional approach to insight, and “cognitive insight”, which is employed to denote the process of evaluating and correcting distorted beliefs and misinterpretations. This process is regarded as a manifestation of cognitive flexibility. Consistent with this approach, Beck et al. (2004) define cognitive insight as the capability to recognize beliefs and misinterpretations that do not correspond to reality, evaluate them through reasoning, and replace incorrect inferences with more appropriate and realistic ones. Van Camp et al. (2017), conceptualize cognitive insight as the metacognitive competence to reassess personal beliefs and reinterpret them through a more rational and realistic lens. Research shows that higher levels of cognitive flexibility are associated with more positive outcomes, particularly in individuals with psychotic disorders. For example, Granholm et al., (2005), Perivoliotis et al., (2010) and Premkumar et al., (2011) reported that individuals with a greater capacity for identifying and reflecting on their own maladaptive thoughts and distorted beliefs tended to experience more favorable psychological outcomes (i.e., cognitive insight), the greater the likelihood of evaluating and applying alternative ways of thinking, as they are more open to accepting that their thoughts may be erroneous. This, in turn, leads to a significant reduction in psychotic symptoms and contributes to individuals achieving a more functional mental state.

Mindfulness, which originates from Eastern meditative traditions, is an approach to focusing attention, described as the practice of maintaining

focused awareness on the present moment, both internal experiences and external stimuli, without judgement and with an accepting attitude (Baer, 2003; Brown et al., 2007; Brown & Ryan, 2003). Mindfulness is the concentration of attention and awareness on the present moment. In contrast, mindlessness is characterized by inattention, absent-mindedness or disinterest and indicates the absence of mindfulness. This state can manifest as the individual refusing to pay attention to or accept a thought, emotion, urge or unpleasant sensation (Brown & Ryan, 2003). Mindfulness facilitates the development of functional self- and environmental awareness by promoting clarity in the perception of present-moment experiences. (Deniz et al., 2017). Previous research has demonstrated that individuals who demonstrate high levels of mindfulness are more successful in areas of personal functioning such as self-regulation, self-management, and self-efficacy, and demonstrate advanced skills in planning, organizing their behavior, and self-control (Akçakanat & Köse, 2018). Individuals with developed mindfulness skills demonstrate high competence in terms of mental clarity, emotional balance, and the capacity for sustained attention to present experiences. These individuals can identify their internal feelings and thoughts and make sense of their experiences by relating them to their mental schemas. They can also distance themselves from the stress and anxiety caused by negative experiences and focus their attention on moment-to-moment experience (Brown et al., 2007). Mindfulness contributes to an individual's ability to identify and modulate their emotional states and the emotional states of those around them in a healthier way (Schutte et al., 2002). Also, research in the psychology literature shows that mindfulness-based interventions have significant and positive effects on stress management, self-confidence development, emotional awareness, creativity levels, attention span, and learning skills (Langer et al., 2017; Özyeşil et al., 2011; Roemer et al., 2009). As the psychological benefits of mindfulness have become well-established, interest in its application within clinical and caregiving settings has also expanded. Over the past decade, the use of mindfulness-based interventions in healthcare has increased significantly. Studies have been conducted on various groups, including nurses, cancer patients, individuals with a history of substance use organ transplant recipients, individuals diagnosed with diabetes, and caregivers, and have examined the effects of these interventions. These studies reveal that mindfulness-based practices contribute to reducing stress, supporting psychological well-being, and improving care processes in different groups of patients and healthcare workers (Körükçü & Özet, 2015; Mackenzie et al., 2006; Praissman, 2008; Yüksel et al., 2020).

Beyond traditional healthcare and psychological settings, mindfulness has begun to attract interest in cognitively intense environments like competitive esports. In recent years, esports have developed rapidly due to the impact of digitalization and have become a sport in which individuals or teams compete in an organized way in digital environments and are increasingly professionalized (Hamari & Sjöblom, 2017). Esports players, like traditional athletes, specialize in a specific game, train regularly and face high performance expectations. This situation is similar to traditional sports in terms of cognitive and motor performance, as well as psychological skills such as confidence, focus, flow and stress management (Leis et al., 2024; Nagorsky & Wiemeyer, 2020; Rosell Llorens, 2017). In this context, esports is considered a multifaceted activity that challenges not only physical skills, but also cognitive and emotional competencies such as mental stamina, focus, strategic thinking, and stress management (Himmelstein et al., 2017). Therefore, success in esports is closely linked not only to technical skills, but also to the proficiency in coping with psychological stressors and maintain emotional balance. The intense competitive environment inherent in esports can sometimes lead to stress for players (Madden & Harteveld, 2021). This stress is fuelled by factors such as high-performance expectations, individual and team responsibilities, demanding training processes and the pressure of competition in general. At this point, mindfulness is seen as a valuable psychological resource for esports players in terms of sustaining attention, managing emotional fluctuations, and effectively coping with stress. Research shows that mindfulness practices significantly reduce stress levels, particularly in individuals under intense stress (Hughes et al., 2013; Rosenzweig et al., 2003). Indeed, elite esports players have been found to use mindfulness techniques to improve their concentration and manage their emotional states (Poulus et al., 2022). As well as its widely recognized psychological benefits, a lot of research has shown that mindfulness has a big health-promoting effect on the body and on behaviour. Recent studies have shown that mindfulness practices have multifaceted and positive effects not only on psychological health but also on physical health. For example, a study by Remskar et al. (2024) found that a 30-day digital and individual mindfulness programme significantly improved psychological well-being, with this effect partially related to improved attitudes toward health behaviours and strengthened behavioural intentions. Similarly, Komariah et al. (2025) reported that remote mindfulness interventions were effective in reducing sleep disorders, but their effects on fatigue, pain, and physical functioning were more limited. To explain the positive health outcomes of mindfulness-based interventions, Creswell et al. (2019) proposed the stress buffering model, which argues that mindfulness

practices may be associated with positive physical health outcomes through mechanisms supported by biological, behavioural, and neuroimaging findings. Kim et al. (2021) study also supports findings in this area, showing that mindfulness practice reduces perceived stress levels and resting heart rate. All these data suggest that mindfulness-based interventions create holistic effects that improve not only mental health but also physical health through stress, physiology, and health behaviours.

In this perspective, further systematic investigation is warranted regarding the effects of metacognitive processes, such as cognitive insight and mindfulness, on the mental performance and psychological resilience of esports players. The scarcity of research in the area of esports suggests that these psychological structures may play a critical role in players' decision-making processes, attentional control, and stress management skills. The primary objective of this study is to clarify the relationship between cognitive insight and mindfulness levels among esports players and to explain the possible contributions of these two metacognitive structures to psychological functioning in the context of esports. The lack of studies in the literature that examine these two structures together makes this research unique and gives it the potential to make a meaningful contribution to the field. Accordingly, the primary research question addressed in this study is: How does the relationship between cognitive insight and mindfulness contribute to understanding the mental clarity and psychological dynamics of esports players?

MATERIALS AND METHODS

Study type

This study investigates the relationship between esports players' cognitive insight and mindfulness levels. Based on a correlational survey model, this research aims to reveal the statistical relationship between two variables and has a quantitative research design. With its structure aimed at describing the current situation, the study provides a basis for understanding the possible interactions between esports players' cognitive processes and their levels of awareness.

Study group

In this study, a combination of purposive (criterion-based) sampling and convenience sampling was employed. Initially, purposive sampling was used to ensure that participants met predefined characteristics relevant to the esports context. Subsequently, convenience sampling was applied by selecting from those readily available and willing to participate. This dual approach enhances both the relevance of the sample and the practicality of implementation and is presented explicitly in the methodology to allow readers to confidently follow the study's rationale. The study group for this research consists of individuals who actively play esports games in

Türkiye. Since it is not possible to reach all esports players in Türkiye, a sample group was created from this universe. In determining the sample size, the criteria suggested by (Sekaran & Bougie, 2016) were followed. According to it, a sample size of 384 is considered sufficient for populations of 1 million or more. In line with this, a sample group of 398 esports players was created for the study.

Inclusion criteria

This study included individuals aged 18 years and older who actively play esports games in Türkiye. Participants must play competitive online games (e.g., League of Legends, Dota 2, Valorant, CS: GO, PUBG, etc.) at least three days a week on a regular basis and complete the online survey form in full. In addition, participants must voluntarily agree to participate in the research and provide informed consent to the study as criteria for inclusion in the study.

Data collection

Data was collected between May and June 2025 using an online survey method. The researcher-designed survey form was created using the Microsoft Forms platform and distributed through social media platforms, online gaming communities, and digital networks to individuals actively playing esports games across Türkiye.

Measures

In this study, data were collected using a socio-demographic information form, the Beck Cognitive Insight Scale (BCIS) and the Mindfulness Scale (MS). The socio-demographic information form, created by the researcher, determines the participants' age, gender, type of game and duration of participation in esports.

Beck Cognitive Insight Scale (BCIS): The scale developed by Beck et al. (2004) to assess individuals' level of cognitive insight was adapted into Turkish and its validity and reliability were investigated by Aslan et al. (2005). The scale consists of 15 items and is a four-point Likert scale (strongly disagree - strongly agree) with two subscales. Items 1, 3, 4, 5, 6, 8, 12, 14 and 15 measure the 'Self-Expression' sub-dimension, while items 2, 7, 9, 10, 11 and 13 measure the 'Self-Confidence' sub-dimension. The Cronbach's alpha internal consistency coefficient of the scale was found to be .56 for the Self-Expression dimension and .50 for the Self-Confidence dimension. The total cognitive insight score is calculated by subtracting the 'Self-Expression' score from the 'Self-Confidence' score. An increase in the total score indicates a high level of cognitive insight in the individual.

Mindfulness Scale (MS): Developed by Brown (2003), the Mindfulness Scale (MS) aims to measure individual differences in mindfulness skills based on the level of awareness and attention in an individual's life. The Turkish adaptation of the scale was conducted by Özyeşil et al. (2011). The scale consists of 15 items on a six-point Likert scale, and the total score ranges from 15 to 90. A high score on the scale indicates a high level of mindfulness. The factor loadings of the scale items have been reported to range from 0.48 to

0.81. The internal consistency coefficient (Cronbach's alpha) of the scale was calculated to be 0.82, and the test-retest reliability was found to be 0.86.

Statistical analysis

Data were analysed using SPSS 30.0 software. Descriptive statistics are presented as frequencies and percentages. As the study examined the validity and reliability of the scales in the target population, it is essential to report that confirmatory factor analyses (CFA) were employed to verify the construct validity of the measures, and Cronbach's alpha coefficients were computed to determine their internal consistency. Pearson correlation analysis was used to determine the relationship between cognitive insight scores, the subscales of the cognitive insight scale, and awareness. The significance level was accepted as $p < 0.05$.

Ethical approval

The ethical committee approval required for this study was obtained from the Balikesir University Health Sciences Non-Interventional Research Ethics Committee (Date: 16.05.2025, Approval no: 2025/210).

RESULTS

Descriptive statistics were used to analyze the demographic characteristics of the research group. The analysis revealed that 159 participants (39.9%) were aged between 18 and 19, 63 (15.8%) were between 20 and 21, 80 (20.1%) were between 22 and 23, and 96 participants (24.1%) were aged 24 or older. Regarding to gender, 105 participants were female (26.4%) and 293 participants were male (73.6%). Regarding esports experience, 58 individuals (14.6%) reported having between 0 and 1 years of experience, 51 individuals (12.8%) reported having between 2 and 3 years of experience, 54 individuals (13.6%) reported having between 4 and 5 years of experience, and 235 individuals (59.0%) reported having 6 years or more of experience. Regarding the esports game type preferences of the participants, 251 individuals (63.1%) indicated a preference for FPS games, while 147 individuals (36.9%) preferred MOBA games (Table 1).

Confirmatory factor analysis (CFA) and Cronbach's alpha internal consistency coefficient were used to assess the validity and reliability of the structure measured by the Cognitive Insight Scale in the sample of esports players. CFA was used to test whether the theoretically predicted factor structure of the scale was valid for esports players; the model fit indices obtained indicated that structural validity was established (Table 2). In addition, the reliability of the cognitive insight scale was examined using Cronbach's alpha coefficient (0.759), which confirmed that the scale is a reliable measurement tool for the sample of esports players. In DFA applications, goodness of fit indices was examined to assess the fit between the model and the observed variables. In this context, it is recommended to use different fit indices in addition to the chi-squared (χ^2)

value, which is sensitive to sample size (Çokluk et al., 2012; Kafkas & Özen, 2014). Although there is no consensus in the literature, many researchers recommend examining multiple fit indices such as χ^2 , GFI, AGFI, CFI, NFI, RMR and RMSEA together to assess model fit (Meydan & Şeşen, 2015; Tabachnick & Fidell, 2007; Joreskog & Sörbom, 2001). In line with this, the χ^2 , χ^2/df , GFI, CFI, NFI, RMR and

RMSEA values were considered to assess the model fit in this study. These values were calculated using SPSS version 21.0 software package. It was determined that the scale was acceptable and excellent for use with research groups. (Blunch, 2008; Byrne, 2010; Schumacker & Lomax, 2004; Tabachnick & Fidell, 2007).

Table 1. Demographic characteristics of the sample (n=398).

| Variable | | Frequency (n) | Percent (%) |
|-------------------|------------------|---------------|-------------|
| Age | 18-19 age | 159 | 39.9 |
| | 20-21 age | 63 | 15.8 |
| | 22-23 age | 80 | 20.1 |
| | 24 age and over | 96 | 24.1 |
| Gender | Women | 105 | 26.4 |
| | Men | 293 | 73.6 |
| Esport Experience | 0-1 year | 58 | 14.6 |
| | 2-3 years | 51 | 12.8 |
| | 4-5 years | 54 | 13.6 |
| | 6 years and over | 235 | 59.0 |
| Esport Game Genre | FPS | 251 | 63.1 |
| | MOBA | 147 | 36.9 |

n: Count, %: Column percentage.

Table 2. Results of onfirmatory Factor Analysis (CFA) regarding the compatibility of the Cognitive Insight Scale with the study group.

| Compatibility Index | Value | Perfect Compatibility Range | Acceptable Compatibility Range | Evaluation |
|---------------------|---------|-----------------------------|--------------------------------|-----------------------|
| χ^2 | 292.163 | — | — | - |
| χ^2/df | 2.782 | $0 \leq \chi^2/df \leq 2$ | ≤ 3 | Acceptable |
| GFI | 0.902 | $0.90 \leq GFI \leq 1.00$ | ≥ 0.85 | Perfect compatibility |
| CFI | 0.904 | $0.97 \leq CFI \leq 1.00$ | ≥ 0.90 | Acceptable |
| NFI | 0.906 | $0.95 \leq NFI \leq 1.00$ | ≥ 0.90 | Acceptable |
| RMR | 0.066 | ≤ 0.05 | $0.06 \leq RMR \leq 0.08$ | Acceptable |
| RMSEA | 0.075 | $0 \leq RMSEA \leq 0.05$ | ≤ 0.08 | Acceptable |

GFI: Goodness of Fit Index, CFI: Comparative Fit Index, NFI: Normed Fit Index, RMR: Root Mean Square Residual, RMSEA: Root Mean Square Error of Approximation

The table 3 provides an analysis of the relationships between composite scores of mindfulness, self-expression, self-confidence and cognitive insight. The findings indicate a positive and highly significant relationship between mindfulness and self-expression ($r=0.613$, $p<0.001$), and a moderate positive relationship between self-confidence and mindfulness ($r=0.456$, $p<0.001$). Furthermore,

positive and statistically significant relationships were identified between cognitive insight composite scores and mindfulness ($r=0.342$, $p<0.001$) and self-expression ($r=0.704$, $p<0.001$). In contrast, a negative yet statistically significant relationship was identified between self-confidence and the composite score of cognitive insight ($r= -0.175$, $p<0.001$).

Table 1. Correlation test results between mindfulness, cognitive insight, and their subdimensions (n=398).

| Variable | 1. Mindfulness | 2. Self-expression | 3. Self-confidence | 4. Cognitive Insight |
|----------------------|----------------|--------------------|--------------------|----------------------|
| 1. Mindfulness | — | | | |
| 2. Self-expression | 0.613*** | — | | |
| 3. Self-confidence | 0.456*** | 0.577*** | — | |
| 4. Cognitive Insight | 0.342*** | 0.704*** | -0.175*** | — |
| *** $p<0.001$ | | | | |

DISCUSSION

The findings of this study reveal a significant and positive relationship between esports players' cognitive insight and mindfulness levels, providing important insights into the impact of metacognitive processes on digital game performance. Cognitive insight has been shown to involve self-evaluation processes, such as the recognition and restructuring of erroneous thoughts (Burton et al., 2011; Van Camp et al., 2017). The presence of mindfulness has been demonstrated to provide a mental framework that supports these evaluation processes, enabling them to occur in a clearer, more open, and non-judgmental manner (Arslan, 2018; Atalay et al., 2017). The relevant literature highlights the notion that a state of mindful awareness is conducive to the development of self-awareness, facilitating the acquisition of meaning from the present moment and the cultivation of insight by enabling individuals to maintain a present-moment focus. The insight developed enables individuals to recognize thoughts that give rise to negative emotions, such as anxiety and sadness, and to accept these thoughts without judgement (Albayrak, 2020). As this process continues, individuals have the capacity to identify alternative positive interpretations of the thoughts that burden them. Furthermore, during mindfulness practices, individuals are able to recall past experiences; however, this remembrance does not entail reliving old memories but rather accepting them without judgement and redirecting their focus back to the present moment (Özyeşil et al., 2011). This approach has been demonstrated to enhance an individual's cognitive flexibility and foster the development of cognitive insight (Çakmak et al., 2021; Özbay & Palancı, 2013; Yılmaz & Okanlı, 2018). Findings indicating that individuals with higher levels of mindfulness experience lower levels of stress and anxiety are empirically supported by numerous studies conducted within the field of health sciences; accordingly, the prevailing trend in the existing literature further reinforces the validity of this relationship (Pan et al., 2019; Yüksel et al., 2020; Zhang et al., 2019). In this context, the cultivation of mindfulness skills among esports players has the potential to exert a positive influence on performance-determining factors such as stress management, attention control, and strategic decision-making. Furthermore, it has been hypothesized that this development may also enhance players' self-awareness levels and fortify their long-term psychological resilience.

A notable finding of the study is the strong positive correlation between cognitive insight and the 'self-expression' dimension. Individuals who possess a high degree of insight are able to articulate their thoughts and emotions with greater ease, transparency, and appropriateness, due to their heightened self-awareness (Özbay & Palancı, 2013). Indeed, a study by Kaya et al. (2021) also

demonstrated that heightened insight enhances an individual's capacity to cope with stress and articulate their emotional states. Consistent with the health sciences literature, it has been suggested that cognitive insight can be used to shape therapeutic interventions to increase awareness and improve the quality of life of individuals with mental illness (Sagayadevan et al., 2019). This finding suggests the presence of a significant correlation between cognitive insight and communication skills, such as self-expression. This is especially pertinent in environments where communication and decision-making are of significance, such as in esports. The connection established between an individual's internal awareness and effective self-expression skills has the capacity to contribute positively to team interaction, stress management, and decision-making processes.

Conversely, the negative relationship between cognitive insight and the 'self-confidence' dimension ($r=-0.175$) suggests a more nuanced psychological dynamic. Whilst self-confidence is widely regarded as a favorable characteristic in the context of success and determination, it is acknowledged that excessive self-confidence can result in individuals disregarding their cognitive errors. Indeed, Perez et al. (2020) found that overconfidence in social cognitive tasks was associated with lower performance, particularly in areas such as emotion recognition, and that this could negatively affect cognitive functioning in healthy individuals. In a similar vein, Cassam (2017) and Moore & Healy (2008) have observed that an inflated sense of self-confidence can result in individuals placing undue trust in their own knowledge and abilities. This, in turn, can lead to a failure to consider alternative options and an increase in cognitive errors. In this context, it is asserted that forms of excessive self-confidence may impede an individual's capacity to recognize their own mistakes and weaken their ability to engage in self-critical thinking. The findings of this study indicate that esports players require support regarding mental flexibility and self-critical thinking skills. In environments characterized by intense competition, an individual's capacity to discern and appraise both their achievements and errors is of paramount significance for long-term development and the maintenance of consistent performance. The enhancement of such cognitive awareness has the potential to exert a favorable influence on in-game decision-making processes, as well as on the psychological resilience of esports players. The positive correlations observed between mindfulness and both 'self-expression' ($r=0.613$) and 'self-confidence' ($r=0.456$) suggest the potential of mindfulness to enhance individuals' social-emotional functioning. A review of the literature indicates that individuals who possess a high degree of mindfulness tend to exhibit greater levels of openness and sincerity in their expressions. This, in turn, has been

shown to enhance their overall sense of well-being and happiness (Aldahadha, 2023). In a similar vein, Carson et al. (2004) observed that mindfulness practices facilitate individuals in articulating their emotions and thoughts in a more transparent, constructive, and beneficial manner. As posited by Smorti et al. (2024), individuals who evince elevated levels of mindfulness are better equipped to articulate their emotions in a more salubrious manner. These findings suggest the existence of a functional link between mindfulness and self-expression. Conversely, the positive relationship between mindfulness and 'self-confidence' (self-esteem/self-respect) has been emphasized in various studies. Bajaj et al. (2016) posited that heightened levels of mindfulness have been shown to engender elevated levels of self-esteem, which in turn has been demonstrated to exert a positive influence on psychological well-being. In a similar vein, Stenhaug & Solem (2024) demonstrated that mindfulness improves self-esteem by enhancing self-concept clarity and cognitive flexibility. Oguntuase & Sun (2022) observed that mindfulness-based training enhances individuals' self-confidence and improves their emotional regulation skills.

The findings indicate that mindfulness exerts a positive influence not only on momentary awareness but also on an individual's self-perception, self-expression, and psychological resilience. This can provide a critical advantage, especially in digital competitive environments such as esports, which require high cognitive load, quick decision-making, and intense team interaction. It has been demonstrated that esports players who demonstrate high levels of mindful awareness are able to regulate their emotional processes during periods of stress and pressure within the game. In addition, these players have been shown to establish more open, clear and collaborative communication with their teammates. Players who possess a high level of self-confidence are capable of assuming responsibility for strategic decisions and evolving into self-regulated individuals who are receptive to performance feedback. In this context, the development of mindful awareness skills can be considered a social-emotional competence area that can positively influence both individual performance and team dynamics in esports.

Study Limitations and Strengths

This study makes an important contribution to the extant literature as one of the pioneering studies examining the relationships between cognitive insight, mindfulness, and their sub-dimensions in the context of esports. The study demonstrates a robust methodological approach, illuminating the multidimensional nature of performance in digital competition by concurrently addressing cognitive and emotional structures. The utilization of validated and reliable measurement tools, in conjunction with enough participants, is instrumental in enhancing the reliability of the findings and their generalizability to

the field. Moreover, the study provides significant practical implications for practitioners by offering insights into the psychological functioning of esports players, rather than focusing solely on their gaming performance.

However, it is imperative to acknowledge the limitations of the study. Firstly, the cross-sectional design of the research does not permit causal interpretations of the relationships between variables. Consequently, prospective longitudinal or experimental studies may offer a more precise depiction of the interaction between variables over time. Secondly, given that the data collection tools employed in the study comprised self-report scales, it is possible that participants' responses may have been influenced by social desirability bias or subjective response errors. Finally, given that the participants were selected from a specific geographical region and cultural structure, the results obtained may be limited in their direct generalization to different cultural contexts. Consequently, in subsequent studies, designs that encompass a more extensive and varied selection of demographic characteristics and in-game performance metrics would enhance the generalizability of the findings.

CONCLUSION

The findings reveal how both individual-level internal awareness and social-level expression skills gain functionality in the context of esports. Metacognitive structures such as mindfulness and cognitive insight have been demonstrated to exert a positive influence on not only gamers' performance but also a range of mental processes including stress management, the maintenance of team communication, strategic thinking and self-regulation. In the contemporary context, where esports is undergoing a process of increasing professionalization and mental resilience is emerging as a pivotal factor alongside physical aptitude, studies grounded in such psychological variables offer a substantial foundation for the development of intervention programmes that support individual growth and enhance game performance. In this regard, the present study makes a unique contribution to the existing literature as one of the first studies to examine the relationships between cognitive insight, mindfulness, and its sub-dimensions in a sample of esports players. Furthermore, by highlighting the broader psychological and physiological benefits of mindfulness such as improved emotional regulation, reduced perceived stress, and enhanced health-related behaviors, these findings point to not only in optimizing in-game performance, but also in promoting long-term mental and physical well-being in esports athletes.

Mindfulness-based training programs can be developed within the field of esports and integrated into regular training processes. In this way, a systematic approach can be established that enhances

both performance-oriented outcomes and psychological resilience among players. At the team and organizational levels, educational modules aimed at fostering cognitive insight and self-regulation skills may be implemented; such initiatives would strengthen not only individual development but also team communication and strategic cohesion. From a mental health perspective, support programs incorporating psychological counseling and stress management techniques can be applied. These efforts may reduce the risk of burnout in the long term and contribute to improving athletes' overall quality of life.

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Conflict of Interest

The author declares no potential conflicts of interest with respect to the research and publication of this article.

Author Contributions

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Ethical Approval

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