
Emotional Attachment to Idols in Digital Fan Cultures and Its Behavioral Implications

Nur Wahyuni[□]

Universitas Ahmad Dahlan

e-mail: 2207050016@webmail.uad.ac.id

ABSTRACT

Digital fan culture has fundamentally transformed the relationship between fans and idols through the formation of intense emotional attachment mediated by platform technologies and parasocial interactions. This study aims to explore how emotional attachment to idols is constructed within digital fan culture and to examine its behavioral implications across social, psychological, and economic domains. Using a qualitative interpretative phenomenological approach, in-depth interviews were conducted with active fans aged 18–30 involved in digital fandom communities. Data were analyzed through thematic analysis to identify patterns of emotional experience, parasocial dynamics, and psychological adaptation mechanisms. The findings reveal that emotional attachment emerges from layered interactions between cognitive, affective, and social processes, reinforced by platform algorithms and community dynamics. This attachment produces ambivalent behavioral outcomes, including enhanced sense of belonging, social cohesion, and prosocial behavior, alongside risks of emotional dependency, psychological distress, and social dysfunction when attachment becomes excessive. The study underscores the importance of emotional literacy, social regulation, and ethical digital frameworks in fostering a healthy and sustainable fan culture.

Keyword: *digital culture, emotional attachment, fan behavior, parasocial relationships, fandom.*

INTRODUCTION

Digital fan culture has undergone a significant structural transformation in the last two decades as social media platforms, algorithmic technology, and the presence of virtual idols and digital influencers increasingly dominate the public space. The relationship between fans and idols is no longer limited to the consumption of works or public appearances, but has evolved into an intense and layered emotional attachment, involving cognitive, affective, and behavioral dimensions simultaneously. In this context, emotional attachment to idols serves as a psychosocial mechanism that shapes the identity, regulation of emotions, as well as the social interaction patterns of fans in daily life. This phenomenon is further amplified by the nature of digital media that allows instant communication, content personalization, and the creation of the illusion of closeness through continuous parasocial interactions (Sun, 2025; Iqbal et al., 2025).

The development of digital technology has blurred the boundaries between private and public spaces in the fan-idol relationship. Through platforms like Instagram,

TikTok, Weverse, and various online fandom communities, fans gain almost unlimited access to the personal lives, thoughts, and activities of idols, creating a virtual presence experience that feels real and intimate. Liu and Xu (2025) show that emotional engagement in relationships with virtual influencers forms a psychological bridge between the digital world and social reality, reinforcing the experience of attachment that is subjectively perceived as a meaningful interpersonal relationship. This process is further amplified by the platform's algorithmic design that actively brings fans together with idol content relevant to their preferences, thereby deepening emotional attachment and increasing the intensity of behavioral engagement (Wang, 2025; Liu, 2023).

Globally, the phenomenon of emotional attachment to idols has become an integral part of popular culture dynamics, particularly among the younger generation. K-pop fandoms, sports fan communities, and fans of virtual idols such as Hatsune Miku and Luo Tianyi show a pattern of participation that involves significant commitments of time, energy, emotions, and economic resources. Huang (2023) describes the idol-fan relationship as an "emotional economy", where expressions of affection, loyalty, and symbolic identification form the value system that underpins the digital entertainment industry. In this context, emotional attachment becomes not only an individual psychological experience, but also a social structure that organizes the collective practices of fandom on a global scale (Cheng & Wu, 2025; Zhang, 2025).

In Indonesia, this phenomenon is evident through the expansion of K-pop fandom, increased participation in idol support campaigns, crowdfunding activities, and intensive involvement in cross-platform digital communities. Research by Syawal (2023) shows that K-pop fans in Indonesia develop strong parasocial relationships with their idols through social media, which forms an experience of psychological intimacy even though there is never any direct interaction. Nopiyanti et al. (2025) assert that individual attachment styles are significantly related to the intensity of parasocial interactions in K-pop fans, suggesting that emotional attachment to idols is rooted in deeper and more complex psychological dynamics.

From the perspective of social psychology and communication, emotional attachment to idols is understood as a multidimensional construct that includes cognitive (beliefs and interpretation), affective (feelings, emotions, and closeness), and behaviors (participation, loyalty, and collective action). Sun (2025) developed a three-dimensional framework that explains how fans build parasocial relationships with idols through mutually reinforcing cognitive, emotional, and behavioral processes. This attachment is not static, but develops dynamically along with experience, changes in social contexts, and the evolution of digital platforms (Kim & Kim, 2021; Wang, 2025).

The behavioral implications of emotional attachment to idols are getting more and more attention in the scientific literature. Qu and Zhong (2025) show that idol worship is associated with prosocial tendencies through anxious attachment mechanisms, indicating that emotional attachment does not always have a negative impact, but can also encourage constructive social behavior. On the other hand, Azouz et al. (2025) and Zheng and Xu (2024) found that emotional attachment contributes to fan loyalty and a variety of consumption behaviors, including product purchases, campaign participation, and financial support for idols or sports teams.

However, although the literature has uncovered many aspects of the fan-idol relationship, there are still a number of conceptual and empirical limitations that form a significant research gap. First, most research focuses on behavioral outcomes or consumption motivations, while fans' subjective experiences of building and

maintaining emotional attachment are still relatively underexplored in depth (Huang, 2023; Sun, 2025). Second, studies such as Qu and Zhong (2025) and Zheng and Xu (2024) highlight the relationship between emotional attachment and behavior, but have not comprehensively explained the psychosocial mechanisms linking the two in the context of digital culture. Third, most of the research was conducted in specific cultural contexts, especially China and Western countries, so understanding of the dynamics of fans' emotional attachment in the socio-cultural context of Indonesia is still limited (Syawal, 2023; Nopiyanti et al., 2025).

Based on this gap, this research presents a novelty in the form of an in-depth exploration of how emotional attachment to idols is formed and interpreted in digital fan culture, as well as how such attachment influences individual and collective fan behavior in a broader social context. This study aims to comprehensively analyze the dynamics of fans' emotional attachment to idols and explain the implications of their behavior in digital fan culture.

METHODOLOGY

This study uses a qualitative approach with an interpretive phenomenological design to explore the subjective experiences of fans in building emotional attachment to idols and the accompanying behavioral implications. This approach was chosen because the phenomenon of emotional attachment is complex, contextual, and rooted in personal meaning built through social interaction and digital experiences, so it cannot be reduced to a purely quantitative measurement (Sun, 2025; Liu, 2023). The focus of the research is directed at an in-depth understanding of how fans interpret their relationship with idols, how feelings of closeness and loyalty are formed, and how these experiences affect fans' daily mindsets and behaviors (Qu & Zhong, 2025; Huang, 2023).

The study participants consisted of active fans of music and sports idols aged 18–30 who were intensely involved in the digital fandom community for at least one year. Participant recruitment was carried out through purposive sampling techniques by considering variations in fandom types, levels of involvement, and social backgrounds. Data were collected through semi-structured in-depth interviews lasting 60–90 minutes that explored the fandom's history of engagement, emotional experiences, parasocial interactions, behavioral motivations, as well as the impact of emotional attachment on participants' social, economic, and psychological lives. All interviews were recorded, transcribed verbatim, and analyzed systematically to ensure the depth and integrity of the data (Nopiyanti et al., 2025; He & Sun, 2022).

Data analysis was carried out using thematic analysis techniques through the stages of data familiarization, open coding, conceptual categorization, and the development of main themes that represent patterns of emotional attachment and the implications of fan behavior. The analysis process is carried out iteratively by involving discussions between researchers to minimize interpretation bias. The validity of the findings is maintained through source triangulation, member checking with participants, and trail audits to ensure the credibility, dependability, and confirmability of the research results. Ethical considerations are strictly applied through informed consent, protection of participant identity confidentiality, and sensitivity to the emotional dynamics that arise during the interview process (Liu & Xu, 2025; Zhang, 2025).

RESULTS AND DISCUSSION

Emotional attachment to idols in digital fan culture is a psychosocial construct formed through complex interactions between individual factors, platform technology, and online community dynamics. In the contemporary digital media landscape, fans not only consume representations of idols as public figures, but build psychological relationships that resemble interpersonal relationships through parasocial processes that take place continuously and become increasingly personal. Sun (2025) asserts that this relationship encompasses three main dimensions, namely cognitive, emotional, and behavioral, which function synergistically in shaping the experience of fans' subjective closeness to their idols.

On the cognitive dimension, fans develop belief systems and interpretations about the idol that shape the meaning of the relationship. Fans no longer view idols as abstract figures on screen, but as individuals who are personally known through life narratives, emotional expressions, and digital interactions presented on various platforms. This cognitive process is amplified by the platform's algorithm that personalizes content based on user preferences, thereby creating repeated exposure to emotionally relevant representations of idols and deepening psychological attachment (Wang, 2025; Liu, 2023).

The emotional dimension of attachment is reflected in the intensity of affection, feelings of closeness, empathy, and loyalty that develop in the fan-idol relationship. Liu and Xu (2025) show that emotional engagement in relationships with virtual influencers is able to bridge the virtual world and the social reality of fans, shaping affective experiences that are perceived as authentic and meaningful. In this context, emotional attachment not only serves as a response to external stimuli, but becomes part of the emotional identity structure of the fan itself, which influences the way individuals perceive themselves and their position in the broader social network (Huang, 2023; Kim & Kim, 2021).

On the behavioral dimension, emotional attachment manifests in various forms of active participation in fandom culture, including repeated content consumption, involvement in online communities, participation in idol support campaigns, and sacrifice of economic resources and time. Azouz et al. (2025) show that fan attachment and commitment to sports teams or idols contribute significantly to loyalty and various supportive behaviors that are long-term. This pattern shows that emotional attachment does not stop at the affective realm, but is articulated in structured and collective social practices (Cheng & Wu, 2025; Zheng & Xu, 2024).

In addition to individual factors, the dynamics of digital fan communities play a crucial role in shaping and maintaining emotional attachment. The fandom community serves as a symbolic space where fans share emotions, build a collective identity, and internalize fandom cultural norms and values. Cheng and Wu (2025) show that the "sports fandom circle" is formed through ever-evolving collective emotional dynamics, creating strong social bonds among community members and strengthening loyalty to the object of the fandom. This process shows that emotional attachment is a phenomenon that is not only intrapersonal, but also intersubjective and social (Zhang, 2025; Liu, 2025).

Furthermore, the development of virtual idols and digital influencers adds a new layer of complexity to the construction of emotional attachment. Lang (2025) describes virtual idols as a "new totem" for teenagers, who are central to symbolic identification and emotional trust in digital culture. Fans not only consume virtual idol content, but

build an existential meaning through such attachments, which often replace or complement traditional sources of identity such as family, religion, or other social institutions (Liu, 2023; Sun, 2025). Overall, the construction of emotional attachment in digital fan culture is the result of layered interactions between individual psychological processes, the design of platform technology, and the social dynamics of online communities. This attachment forms the main foundation for the various implications of fan behavior, which will be discussed further in the next subsection (Qu & Zhong, 2025; Huang, 2023).

In addition to the psychological dimension of the individual, emotional attachment to idols also forms a dynamic pattern of symbolic power in the digital space. Digital platforms and entertainment agencies systematically produce narratives, symbols, and images of idols designed to activate fans' emotions, loyalty, and collective identification. Zhang (2025) shows that fan culture under digital platforms is constructed through processes of governance, participation, and resistance, in which fans become not only passive consumers but also social actors involved in the production of meaning and legitimacy of the symbolic power of idols. In this context, emotional attachment becomes a social mechanism that stabilizes the cultural structure of fandom while strengthening the position of idols in the symbolic hierarchy of the digital entertainment industry (Huang, 2023; Liu, 2025).

Furthermore, algorithmic dynamics accelerate and deepen the process of emotional attachment through the logic of affection-based content recommendations. The algorithm not only responds to user behavior, but actively shapes the trajectory of fans' emotions, preferences, and consumption patterns by displaying increasingly emotionally relevant content. Wang (2025) asserts that algorithmic systems on social media platforms play a direct role in strengthening the intensity of parasocial interactions between fans and idols, creating emotional feedback loops that reinforce psychological attachment and affective dependence. This process makes emotional attachment no longer entirely within the subjective control of the individual, but rather is partially constructed by the digital technology architecture itself (Liu & Xu, 2025; Iqbal et al., 2025).

In a broader sociocultural perspective, the emotional attachment to idols serves as a means of searching for meaning and existential orientation of the younger generation in an increasingly fragmented modern society. Lang (2025) interprets virtual idols as a "new totem" that provides a symbol of trust, identification, and emotional cohesion for adolescents and youth. As traditional institutions such as family, religion, and local communities undergo an erosion of symbolic function, digital fandom culture offers an alternative space for the formation of meaning in life, social solidarity, and self-recognition. Thus, emotional attachment to idols cannot be reduced as a mere phenomenon of entertainment consumption, but must be understood as a psychosocial response to the transformation of contemporary social structures (Sun, 2025; Cheng & Wu, 2025).

Emotional attachment to idols has broad and multidimensional behavioral implications in the fan's life, spanning the social, economic, and psychological realms. In the context of social behavior, emotional attachment encourages fans to build and maintain social relationships within fandom communities, which are often the primary source of emotional support, belonging, and collective identity. Liu (2023) shows that active participation in virtual idol fan communities strengthens social engagement and

deepens a sense of connectedness between members, which positively impacts the psychological well-being of fans.

However, emotional attachment can also produce ambivalent behavioral consequences. On the one hand, this attachment can facilitate prosocial behaviors, such as cooperation, solidarity, and contribution to collective social activities. Qu and Zhong (2025) found that idol worship is associated with prosocial tendencies through anxious attachment mechanisms, suggesting that emotional attachment to idols is not always dysfunctional. On the other hand, excessive attachment intensity can trigger obsessive behavior, neglect of personal responsibility, as well as interpersonal conflict, especially when emotional attachment is a major source of emotional regulation and self-identity (He & Sun, 2022; Iqbal et al., 2025).

In the realm of economics, the emotional attachment of fans serves as the main motor of various forms of consumption and financial participation. Yoo et al. (2025) show that trust, loyalty, and perceived value encourage K-pop fans to engage in crowdfunding to support their idols, even when the material benefits obtained are minimal. This pattern shows how emotional attachment can shift rational economic considerations and encourage affectation-based consumption behaviors (Huang, 2023; Zheng & Xu, 2024).

Emotional attachment also influences the behavior patterns of fan identities in digital public spaces. Fans often adopt idol symbols, language styles, and cultural practices as part of their self-expression, which shapes their social identity in online networks. Wang (2025) asserts that platform algorithms strengthen parasocial interactions by presenting emotionally relevant content, thereby deepening fan engagement and strengthening the consistency of fandom identities in digital spaces.

To clarify the spectrum of implications, the following is a synthesis of the literature findings in the form of a table:

Domain	Positive Behavioral Outcomes	Potential Negative Outcomes	Key References
Social	Sense of belonging, solidarity, peer support	Social withdrawal, conflict with non-fans	Liu, 2023; Cheng & Wu, 2025
Psychological	Emotional support, identity formation	Obsession, emotional dependency	Qu & Zhong, 2025; He & Sun, 2022
Economy	Loyalty, crowdfunding participation	Overconsumption, financial strain	Yoo et al., 2025; Huang, 2023
Digital Identity	Self-expression, community engagement	Identity rigidity, online hostility	Wang, 2025; Iqbal et al., 2025

Table 1. Behavioral Implications of Emotional Attachment in Digital Fandom

The table above shows that emotional attachment in digital fan culture results in a spectrum of behaviors that are dualistic in nature. When attachment is integratedly adaptively in the fan's life, it reinforces psychological well-being, social identity, and community cohesion. However, when attachment develops uncontrollably, it has the potential to result in obsessive behavior, social dysfunction, and significant economic distress, which underscores the importance of a deep understanding of the psychosocial mechanisms that link emotional attachment and fan behavior (Qu & Zhong, 2025; Huang, 2023).

The intense emotional attachment to idols in digital fan culture demands complex social regulatory mechanisms and psychological adaptations from individuals as well as communities. Fans are not only dealing with personal affective experiences, but also

with the normative demands of the fandom community that governs the way they think, feel, and act toward idols. Cheng and Wu (2025) assert that the dynamics of collective emotions in fandom form an internal social control structure, in which fan behavior is governed through norms of loyalty, loyalty, and symbolic sacrifice to idols. These social regulations strengthen group cohesion, but also potentially limit individual psychological autonomy when collective pressure overrides self-reflection and emotional balance (Zhang, 2025; Liu, 2025).

From the point of view of psychological adaptation, fans need to develop healthy emotion regulation strategies so that emotional attachment does not develop into an affective dependence that is detrimental to personal well-being. He and Sun (2022) show that the process of "separating" from an idol or reducing emotional attachment often involves phases of psychological adaptation that resemble the grieving process, including rejection, ambivalence, identity reconstruction, and restoration of emotional balance. These findings suggest that emotional attachment to idols forms psychological bonds that are deep enough that their changes require a complex and long-term adaptation process (Qu & Zhong, 2025; Iqbal et al., 2025).

In the context of digital ethics, the intensity of fans' emotional attachment poses a serious challenge to the entertainment industry and social media platform managers. Commercialization strategies that harness fan emotions through narratives of closeness, exclusivity, and loyalty sacrifice have the potential to exploit psychological vulnerability, particularly in adolescents and young adults. Zhang (2025) criticizes the governance practices of digital fandoms that often place economic interests above the protection of the psychological well-being of fans. Therefore, the development of a digital ethical framework that puts fans' mental health and psychological autonomy as a priority is an urgent need in the contemporary fan culture ecosystem (Huang, 2023; Liu & Xu, 2025).

Furthermore, these regulatory challenges cannot be left entirely to individuals, but require a systemic approach involving families, educational institutions, digital communities, as well as public policymakers. Media literacy and emotional literacy are important competencies that need to be developed from an early age so that the younger generation is able to understand the psychosocial dynamics of parasocial relationships and manage emotional attachment reflectively. Nopiyanti et al. (2025) show that attachment styles have a significant effect on the intensity of parasocial interactions, indicating the importance of family-based and education-based interventions in forming patterns of attachment that are more adaptive to digital culture.

Macro-socially, digital fan culture reflects the transformation of the structure of social relations in modern society, where identity, affiliation, and meaning of life are increasingly constructed through digital symbolic networks. Emotional attachment to idols serves as a psychosocial anchor that provides identity stability in the midst of social fragmentation, but also presents the risk of affective dependence that requires careful collective management. Therefore, the sustainability of digital fan culture is highly dependent on the ability of all stakeholders to strike a balance between emotional expression, freedom of participation, and protection of fans' mental health (Sun, 2025; Cheng & Wu, 2025).

CONCLUSION

This article shows that emotional attachment to idols in digital fan culture is a complex and multidimensional psychosocial phenomenon, encompassing cognitive, affective, and behavioral dimensions that are integrated in the social life structure of fans. These attachments not only shape identity, social relationships, and consumption patterns, but also profoundly affect an individual's psychological well-being. The findings of this study confirm that emotional attachment can function as a source of meaning, emotional support, and social cohesion, while potentially posing the risk of affective dependence, social dysfunction, and psychological distress if not managed adaptively.

Theoretically, this study expands the understanding of the relationship between emotions, digital technology, and social constructs in fan culture, by placing emotional attachment as a key mechanism in the dynamics of fan-idol relationships. Practically, these findings emphasize the urgency of developing emotional literacy strategies, social regulation, as well as a digital ethical framework that puts the psychological well-being of fans as a priority. These efforts require cross-sectoral collaboration between families, educational institutions, the entertainment industry, digital platform managers, and public policymakers to create a healthy, sustainable, and human development-oriented fan culture ecosystem.

REFERENCE

Paquin, V., Raugh, I., Davies, M., Lepage, M., Lavigne, K., Dion, J., Abdel-Baki, A., Shah, J., Iyer, S., & Ferrari, M. (2025). Understanding the game experiences and mental health of youth: protocol for the Game-in-Action Quebec cohort study. *BMJ Open*, 15. <https://doi.org/10.1136/bmjopen-2025-103685>

Halldorsson, B., Hill, C., Waite, P., Partridge, K., Freeman, D., & Creswell, C. (2021). Immersive virtual reality and digital applied gaming interventions for the treatment of mental health problems in children and young people: the need for rigorous treatment development and clinical evaluation. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*. <https://doi.org/10.1111/jcpp.13400>

De Wit, J., Van Der Kraan, A., & Theeuwes, J. (2020). Live Streams on Twitch Help Viewers Cope With Difficult Periods in Life. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.586975>

Wols, A., Pingel, M., Lichtwarck-Aschoff, A., & Granic, I. (2024). Effectiveness of applied and casual games for young people's mental health: A systematic review of randomised controlled studies. *Clinical Psychology Review*, 108, 102396. <https://doi.org/10.1016/j.cpr.2024.102396>

Gandhi, R., Cook, C., LaMastra, N., Uttarapong, J., & Wohn, D. (2021). An Exploration of Mental Health Discussions in Live Streaming Gaming Communities. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.575653>

Marques, L., Uchida, P., Aguiar, F., Kadri, G., Santos, R., & Barbosa, S. (2023). Escaping through virtual gaming—what is the association with emotional, social, and mental health? A systematic review. *Frontiers in Psychiatry*, 14. <https://doi.org/10.3389/fpsy.2023.1257685>

Li, Y., Wang, C., & Liu, J. (2020). A Systematic Review of Literature on User Behavior in Video Game Live Streaming. *International Journal of Environmental Research and Public Health*, 17. <https://doi.org/10.3390/ijerph17093328>

Ferrari, M., Sabetti, J., McIlwaine, S., Fazeli, S., Sadati, S., Shah, J., Archie, S., Boydell, K., Lal, S., Henderson, J., Alvarez-Jimenez, M., Andersson, N., Nielsen, R., Reynolds, J., & Iyer, S. (2022). Gaming My Way to Recovery: A Systematic Scoping Review of Digital Game Interventions for Young People's Mental Health Treatment and Promotion. *Frontiers in Digital Health*, 4. <https://doi.org/10.3389/fdgh.2022.814248>

Oswald, T., Rumbold, A., Kedzior, S., & Moore, V. (2020). Psychological impacts of "screen time" and "green time" for children and adolescents: A systematic scoping review. *PLoS ONE*, 15. <https://doi.org/10.1371/journal.pone.0237725>

Solmaz, S., İnan, M., & Şahin, M. Y. (2025). The moderating effects of physical activity on social anxiety and sleep disturbance: managing gaming disorder in young e-sports players. *Frontiers in Public Health*, 13. <https://doi.org/10.3389/fpubh.2025.1544044>

Adekunle, H. O. (2025). Mental Health and Gaming Addiction among Youth: A Case Study of Lagos, Nigeria. *Global Academic Journal of Humanities and Social Sciences*. <https://doi.org/10.36348/gajhss.2025.v07i02.002>

Xu, D., Liu, Y., Zeng, Y., & Liu, D. (2025). Virtual reality in adolescent mental health management under the new media communication environment. *Humanities and Social Sciences Communications*, 12. <https://doi.org/10.1057/s41599-025-04528-1>

Kaimara, P., Oikonomou, A., & Deliyannis, I. (2021). Could virtual reality applications pose real risks to children and adolescents? A systematic review of ethical issues and concerns. *Virtual Reality*, 26, 697–735. <https://doi.org/10.1007/s10055-021-00563-w>

Townsend, C., Humpston, C., Rogers, J., Goodyear, V., Lavis, A., & Michail, M. (2022). The effectiveness of gaming interventions for depression and anxiety in young people: systematic review and meta-analysis. *BJPsych Open*, 8. <https://doi.org/10.1192/bjo.2021.1078>

Vié, C., Govindin-Ramassamy, K., Thellier, D., Labrosse, D., & Montagni, I. (2024). Effectiveness of digital games promoting young people's mental health: A review of reviews. *Digital Health*, 10. <https://doi.org/10.1177/20552076231220814>

Huang, Z., Choi, D.-H., Lai, B., Lu, Z., & Tian, H. (2022). Metaverse-based virtual reality experience and endurance performance in sports economy: Mediating role of mental health and performance anxiety. *Frontiers in Public Health*, 10. <https://doi.org/10.3389/fpubh.2022.991489>

Chan, G., Huo, Y., Kelly, S., Leung, J., Tisdale, C., & Gullo, M. (2022). The impact of eSports and online video gaming on lifestyle behaviours in youth: A systematic review. *Comput. Hum. Behav.*, 126, 106974. <https://doi.org/10.1016/j.chb.2021.106974>

Pallavicini, F., Pepe, A., & Mantovani, F. (2022). The Effects of Playing Video Games on Stress, Anxiety, Depression, Loneliness, and Gaming Disorder During the Early Stages of the COVID-19 Pandemic: PRISMA Systematic Review. *Cyberpsychology, Behavior, and Social Networking*, 25, 334–354. <https://doi.org/10.1089/cyber.2021.0252>

Mittmann, G., Barnard, A., Krammer, I., Martins, D., & Dias, J. (2022). LINA - A Social Augmented Reality Game around Mental Health, Supporting Real-world Connection and Sense of Belonging for Early Adolescents. *Proceedings of the ACM on Human-Computer Interaction*, 6, 1–21. <https://doi.org/10.1145/3549505>

Wen, F., Yusof, H. A., & Abidin, N. Z. (2025). Effects of active video games on affective responses and mental health symptoms in young adults: a systematic review. *BMC Public Health*, 25. <https://doi.org/10.1186/s12889-025-25413-1>