The Double-Edged Impacts of Gaming: A reflexive thematic analysis of the experiences of video game players with mild anxiety.

John Christian Anderson

DClinPsy thesis (Volume 1), 2025

University College London

UCL Doctorate in Clinical Psychology

Thesis declaration form

I confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Signature: 

Name: John Christian Anderson

Date: June 26th 2025

Overview

This thesis explores how gamers with mild anxiety symptoms perceive how gaming impacts their mental health and wellbeing.

Chapter 1 is a conceptual introduction that explores the relationship between problematic gaming and anxiety, with a particular focus on Generalized Anxiety Disorder (GAD) and Internet Gaming Disorder (IGD). It discusses the development of IGD, debates and ongoing methodological issues, the co-occurrence of IGD and GAD, and a literature review of this association across young adult populations aged 18 to 35. It concludes by highlighting that there is a gap in our knowledge of how anxiety and gaming may relate in subclinical populations and how this group risks being overlooked without more research.

Chapter 2 is an empirical paper that describes how reflexive thematic analysis was used to explore the intersect of gaming and anxiety amongst gamers with mild levels of anxiety. Twelve young adults with mild anxiety were individually interviewed about the psychological impacts of their gaming. Four interrelated themes were developed consisting of 'Impact of Gaming: A "Double-Edged" Coping Mechanism', 'Value-Driven Gaming: Gaming for the "Right" Reasons', 'Gaming in Childhood: "A Way to Survive"', 'Gaming Stigma and Stereotypes: "I Carry This Shame"'. This chapter closes with clinical implications, strengths and limitations, and opportunities for future research.

Chapter 3 is a critical appraisal of the research project. It is comprised of reflections related to the content of the project as well as the opportunities and challenges faced conducting the research. It concludes with personal reflections about the emotional impact of hearing such rich stories and

how this has strengthened my interest in using qualitative approaches to give voice to under-researched populations.

IMPACT STATEMENT

Of the millions of young adults living with mild anxiety, a significant proportion also play video games as part of everyday life. Despite this overlap, little is currently known about how gaming and anxiety relate to one another in this group. In contrast, a large evidence-base exists showing that higher anxiety is linked to gaming-related difficulties amongst young adults who meet diagnostic criteria for anxiety or gaming-related disorders (Gao et al., 2022). Much of this research emphasizes quantitative findings and diagnostic frameworks to conceptualize what the impacts of gaming-difficulties are, with less focus on how and why they impact. While this research has provided invaluable insights into the support needs of clinical populations of gamers with anxiety, it has largely overlooked the potential needs of the much larger population of young adults with subclinical anxiety and everyday gaming behaviours. As many people with mild anxiety are at risk of developing more severe presentations (Haller et al., 2014; Volz et al., 2022), it would be a significant oversight if the role of gaming was left unexplored given its association with anxiety amongst clinical groups. This thesis addresses this research gap by reviewing interdisciplinary literature and employing reflexive thematic analysis to explore how anxiety and gaming are related amongst young adult gamers between the ages of 18 to 35 with mild anxiety. It highlights how this relationship exists on a continuum and deepens understanding of the complex and nuanced role that gaming can play in helping and hindering the wellbeing of gamers on the mild end of this spectrum. Taken together, this thesis provides initial insights that future research can build on to better understand the experiences of this group and help inform prevention, early intervention, and support approaches that consider the role of gaming in the context of anxiety.

Clinical practice level

For clinical practice, this study highlights how young adults gamers with mild anxiety may use gaming to cope with anxiety symptoms. Gaming can function both as an adaptive or maladaptive

coping mechanism depending on contextual factors and personal values and motivations. The influences of childhood and gaming-related stigma may also play a role in shaping one's relationship to gaming. The researcher highlights how university wellbeing services can consult with gaming societies to better inform the support and prevention needs for students. The researcher also urges mental health professionals to assess for gaming behaviour and, if relevant, formulate how it may reduce, maintain, or exacerbate anxiety. Without explicit curiosity and consideration, the functions and impacts of gaming may risk being overlooked and the effectiveness of interventions could be reduced.

Research level

In regards to research, the study provided in-depth qualitative data using gamers' perspectives and lived experience, a recognized need in a research topic that is largely quantitative (Karhulahti et al., 2023). Moreover, the use of reflexive thematic analysis demonstrated this approach's effectiveness in conducting qualitative research on a topic that is evolving, debated, and highly stigmatized (Li & Tang, 2023; Galanis & King, 2025). This can support future researchers to adopt a similar approach to add to the limited qualitative evidence base.

Societal level

On a societal level, the impact of video games are often scrutinized, and different countries have instituted policies to restrict gaming amongst younger populations (Ballou et al., 2025; Long et al., 2022). In line with previous studies, this thesis highlights that the impact of gaming in relation to anxiety is complex and individualized. The study also highlights the distress caused by negative sociocultural narratives directed towards gamers. These findings reflect the need for sociocultural discourses and the perspectives of stakeholders to be open-minded, sensitive and compassionate towards gamers and their mental health.

Dissemination of research

The researcher aims to disseminate this research through a variety of ways. Firstly, the researcher aims to publish the empirical paper in relevant academic journals and present at conferences that have a focus on the intersection of psychology and digital technology. The researcher also aims to present this study in his work environments. He previously gave two presentations of the thesis to colleagues in a large psychology team that work with many service-users who play video games. Both presentations generated thoughtful discussion about the need for more awareness and understanding of how gaming can be linked to anxiety and other mental health presentations.

References

Ballou, N., Hakman, T., Vuorre, M., Magnusson, K., & Przybylski, A. K. (2025). How do video games affect mental health? A narrative review of 13 proposed mechanisms.

Gao, Y.-X., Wang, J.-Y., & Dong, G.-H. (2022). The prevalence and possible risk factors of internet gaming disorder among adolescents and young adults: Systematic reviews and meta-analyses. Journal of psychiatric research, 154, 35-43.

Galanis, C. R., & King, D. L. (2025). Stigma and other public perceptions of recreational gaming and gaming disorder: A large-scale qualitative analysis. COMPUTERS IN HUMAN BEHAVIOR REPORTS, 17, 100581.

Haller, H., Cramer, H., Lauche, R., Gass, F., & Dobos, G. J. (2014). The prevalence and burden of subthreshold generalized anxiety disorder: a systematic review. BMC psychiatry, 14, 1-13.

Karhulahti, V.-M., Behm, S., & Lukka, L. (2023). Why do adults seek treatment for gaming (disorder)? A qualitative study. Humanities and Social Sciences Communications, 10(1), 1-8.

Li, T., & Tang, Y. (2023). Visualizing the Evolution of Gaming Disorder Research: A Global Literature Mining Analysis.

Long, J., Bhad, R., Potenza, M. N., Orsolini, L., Phan, V., Kanabar, M., & Achab, S. (2022). Public health approaches and policy changes after the inclusion of gaming disorder in ICD-11: global needs. BJPsych international, 19(3), 63-66.

Volz, H.-P., Saliger, J., Kasper, S., Möller, H.-J., & Seifritz, E. (2022). Subsyndromal generalised anxiety disorder: operationalisation and epidemiology–a systematic literature survey. International Journal of Psychiatry in Clinical Practice, 26(3), 277-286.

Table of Contents

List of tables and figures

Acknowledgements

I would first like to sincerely thank my research supervisors Dr Martin Dechant and Dr Talya Greene for guiding and supporting my thesis journey over the past 3 years. I have learnt so much from you both. You have truly inspired me to want to continue to research in this area and I look forward to future opportunities where I can research relationships between digital technology and mental health. Thank you for believing in me and helping me get to this stage!

I am incredibly grateful to each and every participant that interviewed for this project. Your willingness to be so open and to provide such rich responses truly struck me, and it was an incredible privilege to be able to try and tell your 'stories'. Thank you so much for sharing your lived experiences and helping to highlight the need for thoughtful engagement around the complex ways gaming relates to mental health.

I am so grateful for all of my placement supervisors throughout the doctorate for your guidance and support, each of you have helped shape the clinical psychologist I hope to be. Thank you to my 3rd year placement supervisors Dr Sophie Pratt and Dr Marianna York-Smith for your ongoing support this year and for being so kind and flexible in helping me navigate placement and thesis. Thank you to my course-tutor Alex Fowke for always being there for me, and for every UCL staff member that has helped me along this journey. To my amazing course mates, I will be forever grateful to have had the opportunity to learn with you and from you. Dr Diehl, thank you for being such an inspiring AP Psychology teacher and helping ignite my passion for psychology.

I do not have the words to express how thankful I am for the support from my friends and family. Mom and Dad, thank you for always being there and for supporting each step of my psychology journey with love and patience and wisdom. Without your support I would never have been in this position. To my siblings and their wonderful partners, thank you for always having my back and

encouraging me through the high points and the low points even though we don't all live in the same place. To my nieces and nephews, you always bring such light and joy to my world and help make even the most stressful days feel less stressful. To Hunter and all of my amazing friends, thank you for your relentless encouragement and support for my choice to pursue clinical psychology.

CHAPTER ONE: CONCEPTUAL INTRODUCTION

Abstract

This conceptual introduction explores key concepts and literature related to the association of anxiety and problematic gaming. First it discusses anxiety and the role of Generalized Anxiety Disorder (GAD) in gaming research. Then it outlines the evolution and debates of problematic gaming research and the emergence of Internet Gaming Disorder (IGD). The co-occurrence of GAD and IGD in young adult populations are highlighted. This association is discussed using psychological models that underpin both conditions. A key research gap is identified that highlights how gamers with subclinical distress are largely unrecognized in existing research. This provides rationale for chapter two and highlights how qualitative approaches could support greater understanding of how anxiety and gaming intersect in this population.

1. Introduction

Video games are now one of the most popular leisure activities in the modern era. With an estimated 3 billion gamers worldwide (Newzoo, 2023), the gaming industry's financial value has eclipsed that of the film and music industries combined (Peri, 2024). For most, gaming is a harmless leisure activity that can elicit experiences of enjoyment, social interaction, and achievement (Király et al., 2023). For some, gaming may even represent an integral part of their identity while for others it may be viewed as a more casual pastime (Neys et al., 2014).

The emergence of video games has also been met with wide ranging concerns about its impact on culture, society, and mental health (Griffiths et al., 2015). Long standing debates have existed in both the cultural and academic sphere about issues such as if gaming causes violence (Elson & Ferguson, 2014), increases social isolation (Tushya et al., 2025) and if it impacts psychosocial development (Przybylski, 2014). In recent popular culture, Jonathan Haidt's (2024) best-seller "The Anxious Generation" suggests how gaming and other digital technologies have displaced real-world experiences and contributed to higher levels of anxiety and mental health difficulties in young people and young adults in the 'millennial' generation (Haidt, 2024). While wider debates about the role of gaming in society will likely continue, research suggests that for some gamers there are significant concerns that require mental health research and intervention (Király et al., 2023; Ko et al., 2023). A significant minority of players may experience psychosocial distress in the context of their gaming behaviour, a phenomenon known as problematic gaming (Griffiths et al., 2015). Problematic gaming is linked with a wide array of negative psychological and social outcomes including higher rates of mental health difficulties, poorer socioeconomic outcomes, and disrupted relationships (Männikkö et al., 2020).

Anxiety has been consistently linked to the experience of problematic gamers, suggesting that gamers with higher levels of anxiety are more at risk of gaming maladaptively (Gonzalez-Bueso et al., 2018; Männikkö et al., 2020; Gao et al., 2022). Concerningly, little research has explored the link between anxiety and gaming amongst populations with subclinical levels of

anxiety and less extreme gaming behaviours. As individuals with subclinical anxiety are at greater risk than the general population of worsening mental health (Haller et al., 2014; Volz et al., 2022), it is important to better understand how gamers with anxiety engage with games in the context of their mental health. This is particularly important for populations of young adult gamers, who are a population that has high levels of video game engagement (Engelstätter & Ward, 2022; Gao et al., 2022) and high rates of anxiety (Goodwin et al., 2020; Blanchflower et al., 2024). Increased focus on this population is needed to inform future research on proactive approaches to prevention and early intervention, as without this the vulnerabilities of this group risk being overlooked.

As a range of young adult populations shall be discussed throughout, this thesis defines "young adults" as individuals aged 18 to 35. This age categorization is in line with the American Psychological Association's definition, which states that young adulthood takes place approximately between the ages of 20 to 35 years old (APA, 2023). This age-range is also consistent with young adult categorizations in epidemiological studies, including a study by Goodwin et al. (2020) examining increasing rates of anxiety amongst 18- to 24-year-olds and 26- to 34-year-olds. It must be noted that some studies that shall be discussed include a narrower age range to quantify "young adults", such as Gao and colleagues' (2022) use of 18 to 28 years old in a systematic review. However, the broader age range chosen for this study allows for insights to be gathered at both ends of the young adult spectrum, including emerging adults aged 18 to 25 (Arnett, 2000) as well as those in their early thirties approaching middle adulthood.

2. Anxiety disorders and Generalized Anxiety Disorder

2.1 Anxiety

Anxiety is described as a future orientated emotional state that is activated in response to potentially aversive events (Barlow, 2004). While closely related to fear, anxiety is an enduring state of threat that includes cognitive perceptions of danger, helplessness, uncontrollability, and uncertainty (Barlow, 2004; Clark & Beck, 2011). Fear on the other hand, is a primal response to threat and danger that acts as an alarm system that can trigger anxiety (Barlow, 2004; Clark & Beck, 2011). The symptoms of anxiety are broadly categorized as worry, avoidance, and physical responses such as muscle tension (Lang, 1968; Craske et al., 2011). For many, anxiety is a typical and temporary emotional state following stressful events or difficult time periods. For many others, they may experience anxiety in a much more persistent and excessive way than might be ordinarily expected for that context. Clark and Beck (2011) discuss how anxiety can be classified as excessive and maladaptive when it is persistent and contributes to dysfunctional cognitions, impaired functioning, false alarms, and stimulus hypersensitivity. Individuals with anxiety often find ways to cope with their distress through rumination, escape, avoidance, and safety-seeking behaviours (Clark & Beck, 2011). Emotionally they feel nervous, 'on edge', fearful, worried, and frustrated (Clark & Beck, 2011). Anxiety can impact many domains of one's life and cause significant distress, including in psychological wellbeing, relationships, academic, and professional attainment (Olatunji et al., 2007; Clark & Beck, 2011). Furthermore, anxiety is both highly co-morbid with a range of other psychological difficulties while also being a risk factor for the development of other psychological difficulties (Kaufman & Charney, 2000; Clark & Beck, 2011). As such, increased focus has been given to anxiety's relationship to other mental health conditions including difficulties associated with digital technologies and gaming (Weinstein & Aboujaoude, 2015; Wang et al., 2017; Bonnaire & Baptista, 2019). Understandably, both the specific and wider impacts of anxiety are an ongoing focus of research in clinical psychology research.

In a large-scale United Kingdom based survey, the Mental Health Foundation (2023) found that 73% of respondents had felt anxious in the previous two weeks and 20% felt anxious constantly, with 18 to 34 year olds responding as the most impacted age range. A survey by the Office of National Statistics (2024) highlights that a continuum of anxiety exists in the population, estimating that of those that have anxiety in the UK 59.6% have very low to low anxiety while 40.6% experience medium or high levels of anxiety. These figures mirror the ever-increasing number of referrals to NHS Talking Therapies, the UK's premier primary care mental health service, with over 500,000 referrals received for anxiety-related disorders recorded between 2023 to 2024 (NHS Digital, 2024). While not everyone with subclinical or less severe forms of anxiety will require treatment, they may still experience daily distress and be at risk for worsening symptoms (Haller et al., 2014; Volz et al., 2022).

2.2 Generalised Anxiety Disorder as a lens to explore the relationship between anxiety and gaming

This conceptual introduction will primarily focus on Generalized Anxiety Disorder (GAD) when discussing anxiety in the context of problematic gaming. Firstly, GAD is one of the most common mental health difficulties in the UK (Slee et al., 2021) and therefore has wide-ranging clinical relevance. Secondly, while not used in every single study that will be discussed, GAD has been a widely used construct in exploring the associations of problematic gaming and anxiety particularly amongst young adults (Wang et al., 2017; Gonzalez-Bueso et al., 2018). The focus on GAD in this conceptual introduction aims to support a more expansive discussion around the links between anxiety and gaming than may be possible with more specific forms of anxiety such as OCD or Social Phobia (see (Starcevic & Aboujaoude, 2017; Gioia et al., 2022)).

The Diagnostic and Statistical Manual of Mental Disorders (5th Ed; DSM-5; American Psychiatric Association, 2013) criteria for a diagnosis of GAD includes i) excessive anxiety about various different events or activities more days than not for 6 months, ii) difficulties in controlling

the worrying thoughts, iii) restlessness, feeling on edge, fatigue, difficulty concentrating, irritability, muscle tension, and disrupted sleep, iv) severe distress and impairment in different areas of life (i.e., social relationships, work), v) symptoms are not a result of medication, substance misuse, or another medical condition, and vi) not better explained by a different mental health disorder.

The hallmark symptom of GAD is the pervasive and recurrent sense of worry and anxiety about a wide range of different and non-specific events or activities (American Psychiatric Association, 2013, 2022). Compared to other specific anxiety disorders those with GAD tend to overestimate, more often, the likelihood of the feared outcome occurring and the negative impacts about what would happen if the event did occur (Robichaud et al., 2019). The individual and societal costs of GAD are vast (Robichaud et al., 2019). A qualitative study by O'Brien et al. (2019) explored the lived experience of participants with GAD and found that they experienced relationship difficulties, self-criticism, ongoing experiences of dread, emotional and behavioural avoidance, and shame. GAD is highly comorbid with other difficulties and associated with a wide array of poor psychological and health outcomes including higher levels of depression (Carter et al., 2001) chronic pain (Csupak et al., 2018), substance misuse (Soraya et al., 2022), increased risk of coronary heart disease (Tully et al., 2013). Importantly, GAD exists on a spectrum of impairment and severity. A wealth of research has shown that those with less severe symptoms, or who may be considered as 'subclinical', are also at risk of psychological impairment and are a population that requires important consideration by mental health professionals and researchers (Haller et al., 2014; Volz et al., 2022). This point is particularly important for the current discussion given recent findings that most individuals in the UK with anxiety fall within more low and mild ranges (Office for National Statistics, 2024). Having described GAD, the following section will provide an overview of theoretical frameworks that help explain how anxiety is developed and maintained.

2.3 Brief overview of GAD models

Several well-established models exist to help explain Generalized Anxiety Disorder (GAD) and offer a wide range of theoretical insights into the formation and maintenance of anxiety. While models such as the Avoidance Model of Worry and GAD (Borkovec, 1994; Borkovec et al., 2004) provide valuable perspectives, this thesis primarily focuses on the Metacognitive Model (Wells, 2005), Intolerance of Uncertainty Model (Dugas et al., 1997), and Emotion Dysregulation Model (Mennin et al., 2002), of GAD. Together, these three models provide a cohesive conceptualisation relevant to the current discussion as they address both the cognitive and emotional aspects of anxiety, and have a shared emphasis on the underlying mechanisms of avoidance, emotion regulation, and the role of maladaptive coping (Behar, et al., 2009). Moreover, these models share conceptual overlap with models associated with Internet Gaming Disorder which will be discussed in upcoming sections.

The Metacognitive Model of Generalized Anxiety Disorder suggests individuals with GAD experience two types of worry; the first type is directly linked to the perceived threat while the second is worry about the impacts of worry (Wells, 2005). To control 'Type 2' worries (i.e., worries about worrying), those with GAD will try a range of ultimately ineffective strategies including thought suppression, distraction, and avoidance of the situation (Wells, 2009) . These strategies seldomly help the person cope effectively with worry and over time can reinforce the notion that worry is both harmful and uncontrollable (Wells, 1999; Behar et al., 2009). This can create a negative feedback loop in which worry leads to attempts to ineffective behaviours to control it, leading to more worry and feelings of helplessness (Behar et al., 2009).

The Intolerance of Uncertainty model of GAD shares many similarities but highlights the significant role that uncertainty plays in causing and maintain GAD (Dugas et al., 1997; Robichaud et al., 2019). To cope with uncertainty, individuals may view worry as a helpful way to manage a feared outcome or prevent that feared outcome from happening. Over time, chronic worry can contribute to cognitive avoidance and deficient problem solving skills resulting in a lack of self-

efficacy in overcoming problems, frustration in dealing with problems, and pessimism about overcoming a problem (Koerner & Dugas, 2006; Robichaud et al., 2019). Ultimately, these impacts associated with worry can inadvertently perpetuate and worsen one's anxiety over time (Behar et al., 2009).

The Emotion Dysregulation Model of GAD asserts that individuals tend to experience more intense emotions, known as emotional hyperarousal, particularly in relation to negative emotions (Turk et al., 2005). From this framework individuals with GAD also tend to have a worse understanding of their own emotions and additionally may perceive emotions as more threatening (Behar et al., 2009). Finally, those with GAD will develop maladaptive emotion regulation strategies and behaviours to attempt to regulate emotions, but over time these maintain negative emotions (Mennin et al., 2004). Similar to previous models, the interplay of disrupted emotion regulation alongside maladaptive coping strategies serves to perpetuate a bidirectional cycle of distress (Behar et al., 2009).

3. Video games, problematic gaming, and Internet Gaming Disorder

3.1 Video games

In their broadest sense, video games are a form of digital entertainment that allows the player to engage with an electronic device to simulate an activity or interact with a virtual world (Wolf, 2007). Many early iterations of video games were restricted to arcades, where players had to specifically travel to the location and play on a machine in an environment with other people also waiting to play (Banfi, 2024). In the late 1970s dedicated gaming computers, known as gaming consoles, were developed that enabled one to game at home (Wolf, 2007).

In the ensuing decades, gaming consoles and personal computers became more available to consumers ushering in greater autonomy and choice in how and when players chose to engage in gaming. The advent of the internet ushered in yet another paradigm shift, allowing players to game with others whether they be across the street or across the world. This shift to 'multiplayer' experiences further contributed to an increase in popularity and interconnectedness of video games (Griffiths et al., 2015; Griffiths & Pontes, 2020). Over time, video games increasingly became an opportunity to connect and share experiences with others. The ability to play games with like-minded others contributed to the formation of gaming communities and the notion of being a 'gamer' as entwined with one's identity (Shaw, 2012; Zakaria et al., 2023).

In more recent times, the proliferation of smartphones and tablets has further increased the integration of digital technologies and gaming into our daily lives (Mäyrä & Alha, 2020). For millions around the globe video games are now just a 'click away' on the home screen of their mobile devices, making them more accessible to play in daily life (Cai et al., 2022). As a result, many people may play games casually on their mobile devices but not necessarily consider themselves a 'gamer'. At the same time, console and PC gaming has continued to maintain very high levels of engagement alongside the increase in mobile gamers (Ngah et al., 2024). In consequence, the population of gamers worldwide has grown dramatically in recent decades and

is continuing to grow particularly as video gaming is increasingly becoming a more 'mainstream' leisure activity (Engelstätter & Ward, 2022).

3.2 Problematic gaming

"Problematic gaming" refers to video gaming behaviours that cause distress, disruption or impairment to one's daily life (Griffiths et al., 2015). In the literature, "problematic gaming" encompasses an evolving range of terminology to describe gaming-related difficulties including 'computer game dependence', 'problem videogame playing', 'video game addiction', 'pathological gaming', 'excessive gaming', and 'gaming disorders' (Griffiths et al., 2015).

The impacts of problematic gaming can include both direct and indirect consequences including disrupted daily functioning, reduced offline social interactions, and neglect or avoidance of important responsibilities (King & Delfabbro, 2018). It has been positively associated with a range of mental health difficulties including anxiety, depression, obsessive-compulsive disorder, and suicidality (Pearcy et al., 2017; Männikkö et al., 2020; Erevik et al., 2022). Problematic gaming has also been linked with increased impairment in factors shared across different psychological difficulties including impulsivity (Hammad & Al-shahrani, 2024), self-control (Cudo et al., 2022), emotion regulation (Estupiñá et al., 2024), and sleep difficulties (Männikkö et al., 2020; De Rosa et al., 2024). Alongside this, it has been associated with lower self-esteem (Kavanagh et al., 2023) and quality of life (Mentzoni et al., 2011). In regards to negative social outcomes, problematic gaming is associated with worse academic performance (Alzahrani & Griffiths, 2024), financial burdens (Király et al., 2022), and impacts on family and partner relationships (Szász-Janocha et al., 2023). These psychological and social impacts related to problematic gaming are reflected in treatment-seeking groups, who commonly seek help for functional impairment, family and relationship difficulties, and mental health difficulties (Karhulati et al., 2023; Bore et al., 2025).

A widely cited systematic review and meta-analysis estimated that worldwide prevalence of individuals with a gaming-related disorder was 3.05% (Stevens, Dorstyn, et al., 2021). A

similar global prevalence was estimated by Kim et al. (2022), reporting an overall pooled prevalence of 3.3%. An estimated 53% of all UK adults play video games (Ofcom, 2025) and while exact figures have not yet been established, a substantial subset of this population could be at risk of gaming-related distress.

While contemporary approaches to conceptualizing problematic gaming will be discussed, it is worth briefly looking at the historical context of this issue. Concerns about the potentially negative impacts of gaming have existed since the early days of its introduction into society (Griffiths et al., 2015). A 1982 journal article written by a task force of psychiatrists in the United States titled 'Space Invaders Obsession' described how an 'electronic video-game craze' was sweeping across the country and among other issues disrupting marriage and relationships (Ross et al., 1982). Perhaps echoing the sentiment of Don Mclean's (Mclean, 1971) famous American Pie lyrics "a generation lost in space", video games perhaps represented yet another frontier in an increasingly evolving technological world. The 1990's ushered in greater research on the impact of console gaming but as Griffiths et al. (2015) note, research was constricted by a lack of a cohesive conceptualization of problematic gaming and by extension lack of validated psychometric measures with which to study it. By the 2000s, research had continued to grow and a contemporaneous systematic review by Kuss and Griffiths (2012) revealed that the 30 empirical studies included suggested i) that problematic gaming existed, ii) was associated with a range of negative psychological outcomes, and iii) should be conceptualized as a behavioural addiction. Until this point, gaming-related difficulties had largely been attributed to deficits in impulse-control under the DSM-4 (American Psychiatric Association, 2000) 'Impulse Control Disorders' classification of behaviours in which the individual is unable to resist engaging in excessive or harmful behaviours (Kuss & Griffiths, 2012).

3.2.1 Debates about the construct of problematic gaming

In the years preceding the DSM-5 release in 2013 many scholars began more formally conceptualizing problematic gaming as a behavioural addiction, building on similarities with Problem Gambling (Griffiths & Pontes, 2020). Griffiths (2010) initially argued that problematic gaming behaviour fulfils the six primary criteria of addiction which includes salience, mood modification, tolerance, withdrawal, conflict with others, and relapse. However, while studying this approach Griffiths (2010) found that, unlike most other addictions, problems did not arise directly from the amount of time spent playing but were more linked to the context of why the individual was gaming. In the years since, increasing research has demonstrated this point and found that game time alone is indeed not an effective standalone predictor of gaming disorders (Cekic et al., 2024). King and Delfabbro (2014) similarly highlighted the need for more recognition of potential differences between gaming and other addictions, particularly in relation to psychological and contextual factors. Building on this, Demetrovics and colleagues (2012) proposed an addiction-orientated approach to problematic gaming that highlighted such psychological and contextual dimensions including preoccupation, overuse, immersion, social isolation, interpersonal conflict, and withdrawal.

Eventually by the mid 2010's, in a context of increased research and increased public health concern, both the DSM-5 (American Psychiatric Association, 2013) and the International Classification of Diseases 11th Edition (World Health Organization, 2022) made the decision to more formally adopt a diagnostic approach to problematic gaming (Griffiths & Pontes, 2020). It is important to acknowledge that the decision to do so has been met with support as well as controversy. Key themes of this debate will be briefly discussed to highlight the evolving nature of this phenomenon as well as contextualise why it remains hampered by methodological obstacles (King et al., 2020).

Aarseth and colleagues (2017) penned an open debate paper highlighting a range of concerns about the inclusion of Gaming Disorder in the ICD-11 and its possible negative impacts.

They argued that the proposed diagnostic constructs of problematic gaming are overly focused on those of substance misuse and gambling, there is a lack of consensus on the symptoms of problematic gaming and how to assess these, and the overall research base is lacking in quality (Aarseth et al., 2017). Next, they posited that proposed diagnoses may contribute to a 'moral panic' that could lead to over diagnoses and treatment for 'false positive' cases, research would shift to confirming the existing frameworks as opposed to exploring other theoretical explanations, and could add further stigma to an already stigmatized issue (Aarseth et al., 2017). Preceding this, Schimmenti et al. (2014) had raised concerns about the need for greater clarity on research and clinical implications related to problematic gaming particularly in the context of its potential inclusions as a formal diagnosis.

Griffiths and colleagues (2017), in direct response to Aarseth et al. (2017), agreed that the field of problematic gaming is an evolving field of study with many unanswered questions. However they argued that to better support individuals with gaming-related difficulties it is essential to have a diagnostic framework with which to use a touchpoint for assessment, treatment, and further research (Griffiths et al., 2017). Moreover, they highlighted that while exact symptoms may not yet be fully understood, a lack of consensus on this should not justify disregarding the impacts that problematic gaming can have on a minority of players' mental health (Griffiths et al., 2017). Long et al. (2022) similarly argue that a formalized 'Gaming Disorder' can facilitate research internationally, increase awareness of gaming-related difficulties in different countries, and increase healthcare professionals capacity to support those impacted by problematic gaming.

3.3 Internet gaming disorder

Internet Gaming Disorder (IGD) was ultimately added to the DSM-5 in Section 3 Conditions for Further Study in response to problematic gaming's increased profile as a public health concern and the emerging use of treatments for gaming-related difficulties (American Psychiatric Association, 2013, 2022). The DSM-5 describes this section of the handbook as

proposed criteria sets that are in need of further research and are as of yet not intended for 'clinical use'(American Psychiatric Association, 2013, 2022). Conditions in this section, including Internet Gaming Disorder, are designed to provide a 'common language for researchers and clinicians' who aim to study them to inform future inclusion (American Psychiatric Association, 2022).

The proposed criteria for Internet Gaming Disorder state that the individual must engage in persistent and recurrent internet use to play games in a way that causes clinically significant impairment or distress in the course of a 12-month period (American Psychiatric Association, 2013, 2022). To reach a proposed diagnosis impairment or distress must be indicated through at least 5 of the proposed 9 criteria which are i) preoccupation with internet games, ii) withdrawal when games are taken away, iii) tolerance, iv) unsuccessful attempts to control gaming, v) loss of interest in other hobbies and entertainment, vi) continued use of gaming despite knowledge of psychosocial problems, vii) deception of gaming to others, viii) use of internet games to escape or relieve negative moods, ix) gaming has jeopardized a significant relationship, job, academic, or career opportunity (American Psychiatric Association, 2013, 2022).

Much like the wider field of problematic gaming, the concept of IGD has faced debate since its inception. Opponents of the IGD have raised a series of concerns about the validity and pathologizing nature of it. Dullur and Starcevic (2018) argue that IGD is not understood well enough as of yet to be viewed as a clinical syndrome, it risks pathologizing normal behaviour, and its addiction-centric framework risks being too constrictive and could potentially stifle other ways of approaching this phenomenon.

IGD's cultural validity has also been scrutinized, particularly in relation to how it can be identified and measured in different countries and languages. The most used IGD-related psychometric tool, the Internet Gaming Disorder Scale Short Form (IGDSF-9) developed by Pontes and Griffiths (2015), has faced ongoing questions about what constitutes optimal cut-off scores in different cultural contexts for determining IGD vs. non-IGD. Qin and colleagues (2020), highlighting this lack of clarity, established that a lower threshold score for gamers in a Chinese

context (cutoff score of 32) was more appropriate than the cut-off score initially proposed by Pontes and Griffiths (2015) of 36. They highlight how Pontes and Griffiths (2015) original validation of the IGDSF-9 was based on a large sample of English-speakers (Qin et al., 2020). The need for different cut off scores was also found in Italian and Brazilian studies (Monacis et al., 2016; Severo et al., 2020). Király et al. (2019), in a study examining cross-cultural validity of IGD measures across nine languages, found robust psychometric qualities but emphasise the need for ongoing cross-cultural research in developing psychometric tools.

Another aspect of debate around IGD as a construct is that despite having 'internet' in its name it also includes gaming that can be offline. The DSM-5's intention in including 'internet' was primarily based on findings that online video gaming was found to be associated with higher levels of addiction than offline games (Haagsma et al., 2013; Király et al., 2015). However, scholars highlight the need for further clarity on this ahead of potential inclusion in future iterations of the DSM as offline gaming can also contribute to problematic gaming behaviours (Kim & Gentile, 2025).

4. Literature review of anxiety and Internet Gaming Disorder

Despite ongoing debates, the proposed criteria of Internet Gaming Disorder (IGD) have been widely used in exploring gaming and mental health (Kim & Gentile, 2025). This includes the use of IGD-related measures which have supported more standardized approaches to measuring and conceptualising problematic gaming across multiple settings and countries (Pontes & Griffiths, 2015; Király et al., 2019; Qin et al., 2020). Research shows that many gamers have co-occurring difficulties related to anxiety and Internet Gaming Disorder (Gonzalez-Bueso et al., 2018; Männikkö et al., 2020; Gao et al., 2022).

Although limited in number, existing metanalytic findings support the consistency of this association across diverse populations and ages. For example, a large-scale systematic review and meta-analysis of risk factors for IGD amongst adolescents (aged 8 to 18) and young adults (aged

18 to 28) by Gao and colleagues (2022) revealed anxiety as a key mental health correlate of gaming difficulties. Their meta-analysis revealed a significant pooled odds ratio of 1.2, (95% CI [1.1, 1.3]) across 11 studies which suggests that individuals with anxiety have 20% higher odds of meeting the IGD diagnostic criteria (Gao et al., 2022). However, heterogeneity amongst effect sizes of included studies was high ($I^2 = 90.6\%$, $p < .001$) (Gao et al., 2022). Gao et al. (2022) highlight the diverse range of gaming measures used in included studies as a key reason for the high variance in effect sizes, and highlight the need for greater methodological standardization in future research.

A systematic review and meta-analysis by Männikkö et al. (2020) similarly found anxiety to be associated to problematic gaming behaviour amongst gamers aged 12 and above. The meta-analysis in this study found an average effect size of $r=0.28$ (95% CI [.19, .37], $p < .0001$) across 12 studies, indicating a small to moderate association between anxiety symptoms and problematic gaming behaviours (Männikkö et al., 2020). The authors found that effect sizes between anxiety and problematic gaming were higher amongst young adults (aged 18 to 28) as compared to children and adolescents (Männikkö et al., 2020). This study also found high levels of heterogeneity amongst included effect sizes ($I^2 = 98.3\%$), with the authors similarly discussing the role of heterogenous gaming measures and ways of conceptualising gaming disorder as a barrier for more precise interpretations (Männikkö et al., 2020). These meta-analytic findings are supported by a systematic review by González-Bueso et al. (2018) which examined IGD and mental-health-related outcomes across adolescent and adult populations. The authors report that 92% of the 24 included studies found associations between IGD and anxiety (Gonzalez-Bueso et al., 2018).

Taken together, these findings provide an overview of the positive association between gaming-related difficulties and anxiety, while also highlighting a range of methodological limitations that require ongoing consideration. While associations between IGD and anxiety have been observed in different age groups, much research has focused on the developmental period of young adulthood (Gao et al., 2022).

4.1 Characteristics of gaming in young adult populations

Young adults are a population that is particularly vulnerable to the development of both gaming-related distress (Gao et al., 2022) and anxiety (Goodwin et al., 2020). In their meta-analysis of over 400,000 participants from 33 countries, Gao et al. (2022) found that the pooled prevalence of IGD amongst young adults aged 18 to 28 was 10.4% (95% CI: 8.8%-11.9%). They discuss how this IGD prevalence was higher in young adults than in other populations including adolescents.

Young adulthood is viewed as an important developmental stage of change and transition and a time of heightened risk to technological addictions (Sussman & Arnett, 2014). In one of the few direct comparison studies that could be identified, Wang et al. (2017) explored differences in those with clinical levels of Generalised Anxiety Disorder amongst Taiwanese young adults aged between 20 and 30 years old, with (N=87) and without (N=87) a history of IGD. Using logistic regression analysis, the authors found that participants with GAD were over eight times more likely to also have IGD (OR = 8.11, 95% CI: 1.78−37.09) than those without GAD (Wang et al., 2017). Wang et al. (2017) discuss a vicious cycle of comorbid gaming and anxiety-related distress, wherein the overreliance on gaming to avoid real life stress contributes to negative consequences that could perpetuate the need to use gaming to cope.

Adams et al. (2019) found similar results in a mixed cross-sectional and longitudinal study amongst Australian young adult players, aged between 18 to 29 years old, of Massively Multiplayer Online games. The linear regression model used revealed that at time point 1 anxiety explained 23.6% of the variance in observed IGD scores (R^2 =.24, F(1, 120)=36.98, p<.001), and 8.9% of IGD symptoms three months later (R^2=.09,F(1, 56)=5.48, p=.023) (Adams et al., 2019). Adams et al. (2019) similarly highlight gaming's immersive and escapist nature as a potential source of appeal for anxious gamers wishing to find relief from real-world stressors.

4.1.1 The Role of Biological-Sex Differences and Gender

Research has consistently indicated that biological-sex differences exist in the prevalence of IGD (Lopez-Fernandez et al., 2019; Stevens, Dorstyn, et al., 2021). Stevens et al. (2021) found that male gamers were 2.5 times more likely to meet criteria for gaming disorders compared to females. They discuss that while gaming disorder rates amongst females remain lower than in males, prevalence rates amongst females is on the rise (Stevens, Dorstyn, et al., 2021). In their systematic review, Gao et al. (2022) similarly found higher rates of IGD amongst males. They discuss how males may be particularly be drawn to violent and action-focused gameplay elements of many popular online games (Gao et al., 2022).

However, Bonnaire and Baptista (2019) warn against generalisations and the need to recognise that gaming patterns may continue to shift as populations of female gamers increase. In their study, Bonnaire and Baptista (2019) found that both male and female problematic gamers had higher anxiety and depression scores compared to non-problematic gamers. Within this, they found that male gamers with alexithymia, higher anxiety scores, and higher depression scores were most at risk of IGD. For female problematic gamers, higher depression scores and lower levels of educational attainment was linked to increased risk of IGD. Massively Multiplayer Online Role Playing Games (MMOPRG) were the most associated game type with higher anxiety and IGD scores across all participants, with the authors suggesting MMORPGs may be used as a maladaptive coping mechanism to regulate negative emotions (Bonnaire & Baptista, 2019).

A recent study by Chew et al. (2025) found that, amongst Singaporean adult gamers, IGD prevalence was 14.6% in males and 6.2% in females. They found that anxiety, stress, and depression were higher amongst gamers with IGD compared to gamers without IGD (Chew et al., 2025). While they do not provide differences in anxiety scores between biological sexes, their findings suggest male gamers could be at greater risk of psychological distress due to their higher prevalence of gaming-related difficulties.

It is important to note that much of the described literature base refers to gender differences through the binary lens of female and male participants, limiting insights into broader relationships between gaming, anxiety, and gender-identity. While not focused on the experience of anxiety in the context of gaming, Shaw (2012) highlights how one's identity as a gamer is shaped through the intersection of multiple aspects of identity, including gender. A narrative review by Lopez-Fernandez et al. (2019) further highlights that little empirical or theoretical research has explored problematic gaming in women, and how this reflects a wider research gap in how gender relates to gaming-related benefits and risks to wellbeing. Unfortunately little research could be identified that explores the relationship between gaming and anxiety amongst transgender individuals despite evidence suggesting high video game engagement amongst this population (Arcelus et al., 2016). In their study, Arcelus et al. (2016) found that problematic gaming amongst transgender participants was associated with younger age, general interpersonal difficulties, and depression. They also highlight how transgender populations often present with high levels of anxiety, and underscore the need for more research on how gaming relates to mental health in this population (Arcelus et al., 2016). While not the primary focus of this thesis, it is important to recognize that the role of gender and gender-identity is an area in need of further research focus to better inform how gaming and gender may intersect in relation to problematic gaming and anxiety.

4.1.2 The Role of Higher Education

University students are a commonly researched population in this field. Academic stress, disrupted sleep, and uncertainty about future job prospects are viewed as important contextual factors for this subset of young adults (Garg et al., 2023; Gu & Mao, 2023). Gu and Mao (2023) describe how university students, particularly in contexts with high societal value in education, can experience "neijuan", or high levels of social pressure to succeed academically and professionally to improve their socio-economic standing. In their study examining the link between gaming and

'neijuan' amongst Chinese university students aged 17 to 25 years old, academic stress was correlated with increased IGD impairments and increased use of gaming to cope with associated stress through escapism (Gu & Mao, 2023). Relatedly, a study of university students aged 18 to 25 years old in Pakistan (Zahra et al., 2020) revealed that increased gaming was associated with increased psychological distress including anxiety and lower academic performance. The authors highlight the need for increased recognition of gaming-related difficulties amongst university students and increased emphasis on student wellbeing support (Zahra et al., 2020).

In a study of university students (aged 18 to 24 years old) in Hong Kong, Wong et al. (2020) found that increased severity of IGD symptoms was significantly associated with increased severity of anxiety, stress, and sleep difficulties. As with previous studies discussed, the authors again highlight the risk of gaming becoming a maladaptive coping mechanism for stressors that contributes to ongoing distress and excessive use of gaming (Wong et al., 2020). Moudiab et al. (2019) similarly found positive correlations between anxiety and levels of IGD in a sample of UK-based university students with a mean age of 21.3 years, while also exploring the role of gaming-related motivations and maladaptive cognitions. The authors found motives of 'coping' and 'skills development' amongst gamers was a key predictor of IGD scores while the maladaptive cognition of 'overvaluing game rewards' was also found to be indicative of higher IGD scores (Moudiab & Spada, 2019). They suggest that the interplay of these factors could be a risk factor for severity of IGD and suggest, like in previous studies, that this should be studied further to best inform psychological interventions around motives and cognitions for gaming in problematic ways (Moudiab & Spada, 2019).

4.1.3 The Influence of Neurodiversity

Growing research has explored the intersect of gaming and mental health amongst neurodivergent populations of gamers including those with diagnoses of Autism Spectrum Disorder (ASD) and Attention Deficit and Hyperactivity Disorder (ADHD). Concerto et al. (2021)

found that both Autism and ADHD were associated with severity of IGD amongst a large sample of Italian adults. Underlying this, Mazurek and Engelhardt (2013) suggest that deficits in impulse control and response inhibition observed in both Autistic and ADHD populations may be associated with a higher risk of developing gaming-related difficulties. Autism is a developmental condition that can impact social interaction and communication and lead to repetitive and restrictive patterns of behaviours, thoughts, and interests (APA, 2013). For autistic people, gaming may represent a more comfortable environment in which to socialise and build a sense of community as it may require less pressure to respond to social cues (Benford & Standen, 2009; Ringland, 2019; Murray et al., 2022). As with other populations, gaming appears to have both helpful and unhelpful impacts. A systematic review by Murray et al. (2022) found that autistic people who play games had significantly higher gaming disorder scores than non-autistic people who play games. In a more recent systematic review, Eltahir et al. (2024) discuss reasons why some autistic people who play games may score higher on IGD measures, including how increased gaming may be a way to cope with anxiety and low self-esteem as well as it possibly being a restricted interest that is difficult to disengage from (Eltahir et al., 2024).

ADHD is a developmental disorder categorised by pervasive impairments related to attention, impulsive control, and hyperactivity (APA, 2022). Increasing research has found that ADHD-related impairments are a significant risk factor for the development and maintenance of IGD (Koncz et al., 2023). Koncz et al. (2023) suggest that impulsivity may be a shared link between ADHD and IGD with both conditions related to reduced impulse control and response inhibition. They also highlight the increased vulnerability that gamers with ADHD have towards using gaming as an escapist form of coping as they may exhibit increased urgency to manage negative emotions and have less impulse control over their decision making to do so (Cabelguen et al., 2021; Koncz et al., 2023). Anxiety is one of the most common psychological difficulties associated with ADHD (Alarachi et al., 2024), and could exacerbate gamers' use of gaming to escape or cope with negative emotions. Several studies have shown that both anxiety and ADHD are key risk factors for IGD

(Cekic et al., 2024; Martončik et al., 2024), including the previously mentioned systematic review by Gonzalez-Bueso et al. (2018) which found that 92% of included studies had significant positive correlations with anxiety and 89% had significant positive correlations with ADHD symptoms.

4.1.4 Gaming During the COVID-19 Pandemic

Much focus has also been given to the increased time spent gaming during the Covid-19 pandemic wherein many young adults experienced heightened anxiety and social isolation (Dos Santos et al., 2021). In a systematic review of gaming behaviours during the Covid-19 pandemic, the authors found that gaming had varied impacts on anxiety amongst young adults aged between 18 and 35 years old (Pallavicini et al., 2022). Amongst young adult non-problematic gamers, gaming was found to support with stress and anxiety associated with the pandemic. Amongst problematic gamers and gamers with avoidant-coping styles however, gaming contributed to short term relief but longer term stress and anxiety (Pallavicini et al., 2022). The authors highlight that anxiety, loneliness, social isolation, and maladaptive coping styles represent important risk factors for gaming disorders in young people and young adults (Pallavicini et al., 2022).

4.2 Cultural considerations for IGD and anxiety

Gaming research has seen a rapid expansion outside of Western research contexts, with a high volume of excellent research arising out of East Asian countries including China, Korea, Singapore, and Japan (Sixto-Costoya et al., 2021). Moreover, there is strong research collaboration between scholars and academic institutions from North America, Europe, East Asia, and Australia (Sixto-Costoya et al., 2021; Liao et al., 2022). There is a growing recognition that more inclusive and representative research is needed to best conceptualise the impact of mental health across diverse populations as historically much psychological research has been based on Western, Educated, Industrialised, Rich, and Democratic samples (WEIRD) (Henrich et al., 2010;

Muthukrishna et al., 2020; Uskul et al., 2024). The wide breadth of international research and collaboration in the gaming field is therefore a key strength, and has offered important insights into how cultural factors may shape the relationship between anxiety and problematic gaming.

A meta-analysis by Kim et al. (2022) suggests that IGD prevalence in Asia is 6.3% compared to 2.7% in Europe, and 2.6% in North America. Another meta-analysis found that amongst East Asian populations the IGD prevalence was approximately 12% (Liao et al., 2022). While precise prevalence studies on IGD remain limited due to methodological constraints, both metanalytic findings indicate that gaming disorders are higher in Asian gamer populations than European or North American populations (Kim et al., 2022; Liao et al., 2022; Chew et al., 2024). Moreover, government policies and initiatives have been implemented to prevent the impacts of gaming-related difficulties in several East Asian countries including China, South Korea, and Japan (King & Delfabbro, 2017; Long et al., 2022).

Many East Asian countries are considered to be collectivist cultures, which privilege the values of interdependence and prioritising the experience and needs of the group or family system over that of the individual (Cohen et al., 2016). For those belonging to collectivist cultures, their decisions may be more influenced by what others expect of them and how such decisions will impact their wider social context (Singelis & Brown, 1995; Li & Aksoy, 2007). Conversely, many Western countries including the United Kingdom and United States are considered to be more individualistic cultures. Individualistic cultures generally view one's individual needs as superseding those of their social group's, and decisions are more influenced by one's own motivations than those of others (Triandis & Gelfand, 1998). Increasing research has shown that these cultural values may shape the experience of gamers and may contribute to varying levels of emotional distress and anxiety (Stavropoulos et al., 2021).

For example, university students from different cultural backgrounds may have different experiences of how gaming impacts them. Students from East Asian countries may experience higher levels of anxiety and self-doubt in relation to their academic success as their achievements

can be perceived as reflective of their family's achievement (Lee, 2009; Stankov, 2010). In the context of failure, students from these cultural backgrounds may experience heightened anxiety, guilt, and shame as this reflects poorly on their wider family system and reputation (Stankov, 2010). From this perspective, gamers from more collectivist cultures may experience heightened pressure to succeed which could lead to increased use of gaming to cope with this pressure. However, if overuse of gaming negatively impacts one's studies and achievement this could in turn perpetuate heightened feelings of failure and anxiety. Gu and Mao (2023) highlight this in how internet use and gaming amongst Chinese university students was used to cope with such academic and societal pressures to succeed, but risked contributing to long term negative impacts. The United Kingdom is home to a large population of international university students who may experience increased anxiety associated with a range of factors linked to moving to a new culture and environment (Adeoye-Agboola & Evans, 2015). Tejeiro et al. (2016) who studied IGD amongst Chinese international students in the UK, suggests that for some gaming may be a way to compensate and cope with difficulties adjusting to their new context in the UK.

Relatedly, the experience and presentation of anxiety and GAD can vary across different cultures (Marques et al., 2011). In particular, individuals from non-Western countries may experience greater amounts of somatic, or physical, symptoms related to anxiety than those in more Western contexts (Marques et al., 2011). IGD has been found to be associated with somatic symptoms (Yan et al., 2024), with Casale et al. (2021) highlighting the need for interventions to consider the role of bodily sensations when conceptualising the impacts of IGD. Cultural factors appear to play an important role in conceptualising and understanding the link between anxiety and gaming-related difficulties. At the same time, this link appears to be a world-wide phenomenon (Burkauskas et al., 2022). This highlights the need for ongoing research into cross-cultural differences as well as what underlying processes may be shared across cultures to better understand and support those with anxiety and gaming-related distress.

5. Overview of psychological models for Internet Gaming Disorder

Given the heightened co-occurrence of anxiety and problematic gaming amongst young adult populations, it is important to consider how theoretical and neurobiological frameworks can help better understand this relationship. Current understanding of IGD has been conceptualized using a range of frameworks including the Interaction of Person Affect Cognition Execution (I-PACE) model (Brand et al., 2016), Compensatory Internet Use (CIU) model (Kardefelt-Winther, 2014) and emerging neurobiological perspectives (Kuss et al., 2018). Together these view IGD through a biopsychosocial perspective, an approach that highlights the role of biological, psychological, and social factors in the development and maintenance of distress (Engel, 1977). We shall discuss how anxiety, particularly GAD, relates to these frameworks and how gaming and anxiety may impact one another to increase vulnerability to distress.

5.1 Interaction of Person Affect Cognition Execution I-PACE

Brand et al.'s (2016; 2019) Interaction of Person Affect Cognition Execution (I-PACE) model is a widely used model for conceptualizing gaming disorders (as well as other internet-based addictions). I-PACE posits that addiction to gaming results from the interaction of predisposing personal factors (i.e., disposition, mental health difficulties), affective and cognitive responses (i.e., choice of coping mechanisms) and executive functioning (i.e., impulse control, decision making) (Brand et al., 2016; Brand et al., 2019). Aspects of this align well with the Emotion Dysregulation model of GAD (Mennin et al., 2005), which posits that individuals with GAD may struggle to identify and regulate difficult emotions and in turn inadvertently adopt maladaptive coping mechanisms. Individuals with GAD may be predisposed to seeking out the use of gaming to cope with anxiety particularly as the immersive and escapist aspects of gaming can provide a short term relief from worry (Snodgrass et al., 2014; Brand et al., 2019). Alongside this, those with GAD may

experience deficits in executive functioning in areas such as inhibition, working memory, and ability to shift away from negative thinking styles (Zainal & Newman, 2018; Zainal & Newman, 2022). From the I-PACE approach, those with GAD may therefore be at further risk of gaming-related difficulties as impaired executive skills could interfere with development of other coping skills and capacity to control gaming behaviours (Brand et al., 2016; Brand et al., 2019).

5.2 Compensatory Internet Use

Kardefelt-Winther's Compensatory Internet Use (2014) model views problematic gaming, alongside other internet-related difficulties, as the consequence of using these behaviours to maladaptively cope with psychological and emotional distress. CIU posits that motivations for gaming are rooted in psychological difficulties or unmet needs, and behaviours should be viewed alongside psychosocial wellbeing not separately (Kardefelt-Winther, 2014). The Metacognitive Model of Anxiety (Wells, 2011) proposes that individuals with GAD worry about both external threats as well as worry itself and may seek out ways to avoid, suppress, or distract from this. By integrating these models, it appears that gamers with anxiety may be vulnerable to using gaming to experientially avoid both external worries as well as metacognitive worries. For example, a university student who feels worried about upcoming exams may use gaming to avoid acute feelings of exam stress and use it to suppress the experience of being worried about academic performance more broadly. By choosing to game over studying, this student may indeed not perform as well as hoped which could reinforce feelings of anxiety around exams and one's academic abilities. In this instance gaming serves to regulate emotional distress in the short term (Compensatory Internet Use; Kardefelt-Winther, 2014) and reduce metacognitive cycles of worry (Metacognitive Model of Anxiety; Wells, 2011). However, the overreliance of such behaviours can hinder the development of more adaptive coping strategies and risk leading to a cycle of avoidance and long term distress (Wells, 2011).

5.3 Neurobiological perspectives

Research on the neurobiological underpinnings of Internet Gaming Disorder highlight impairments in the brain's reward system, executive control, and interoceptive awareness (Raiha et al., 2020; Yao et al., 2022). A comprehensive review by Weinstein and Lejoyeux (2020) found that individuals with IGD had increased activity in the brain's reward regions, reduced activity in impulse control regions, and reduced connectivity in brain networks associated with executive control and cognitive control. The Tripartite Neurocognitive Model (Wei et al., 2017) conceptualizes IGD as the interaction of the impulse brain system , the reflective brain system, and the interoceptive system. In this model the reflective system, comprised of executive functioning, acts as the gatekeeper of motivations towards addictive behavior that arise from the impulse signals. Similar to other addictions, the impulse system can become overactive through repeated exposure and sensitization to stimuli leading to reduced executive functioning (Everitt & Robbins, 2005). Underlying this is an imbalance in one's interoceptive processes which help sense and respond to psychological or physiological needs (Wei et al., 2017). In the case of IGD, the interoceptive system can become dysregulated and cause physiological responses to be interpreted as cravings to do the activity which then increases impulsivity to gain the reward (Wei et al., 2017).

Individuals with GAD have similarly been observed to have overactive amygdala activity, the brain region associated with emotional responses, which can contribute to greater emotion dysregulation and impulsivity (Lee et al., 2011). Relatedly, individuals with GAD have been shown to have diminished activity in the prefrontal cortex, the brain region associated with attention and emotion regulation processes (Monk et al., 2006; Lee et al., 2011). As such, the shared characteristics of impaired emotion regulation skills and diminished executive functioning could make gamers with anxiety particularly vulnerable to using gaming as an avoidant coping style and emotion regulation strategy.

5.4 Game design elements

While not a particular model, increasing research has linked problematic gaming with game design and gambling-like mechanics such as loot boxes and variable-ratio reward schedules (Zendle & Cairns, 2018; Zendle, 2020; González-Cabrera et al., 2024). Loot boxes are in-game items that provide random rewards that the player can purchase with real-world money (Zendle & Cairns, 2018). Research has shown that these forms of game design are associated with higher levels of dopamine release and higher levels of playing time (Li et al., 2019; Larche et al., 2021). The impacts of this on players' reward systems has increasingly been viewed as being similar to gambling and linked with a range of negative impacts (Von Meduna et al., 2020; Close et al., 2022). In a large UK study, the use of loot boxes in games was associated with lower academic and professional attainment, with lower earning participants spending more on microtransactions than their higher earning counterparts (Close et al., 2022). Higher use of loot box use and other gambling like game mechanics have also been linked to increased anxiety, stress, and impulsivity (Villalba-García et al., 2025). Qualitative findings have found that some gamers can experience guilt, regret, and feel tricked into in-game purchases (Gibson et al., 2023). In line with the Metacognitive Model of anxiety (Wells, 2011), players with anxiety may be more vulnerable to persistently worrying and ruminating about these experiences and worry about the worries associated with these forms of gaming.

6. Treatment approaches to problematic gaming

Mirroring the wider evidence base, findings on effective treatment approaches for problematic gaming remain constrained by the relatively nascent nature of the topic and methodological issues (Zajac et al., 2020; Wang et al., 2023; Dong et al., 2024). A recent scoping review by Dong et al. (2024) examined treatment approaches to IGD over the past ten years and found that Cognitive Behavioural Therapy was the most widely studied treatment and was shown to be effective in included studies. Dong et al. (2024) suggest that CBT may be particularly helpful at challenging maladaptive beliefs related to gaming as well as supporting the development of more helpful coping skills outside of gaming. However they discuss how included studies had high heterogeneity of different CBT approaches, and highlight the need for better designed clinical studies and more standardised interventions to support more precise future research (Dong et al., 2024). A systematic review and meta-analysis by Wang et al. (2023) found similar efficacy of CBT in reducing IGD symptoms, including at 3-month and 6-month follow ups. They too suggest that CBT's strengths in supporting individuals to change maladaptive coping styles could be a significant factor in its observed efficacy as an intervention (Wang et al., 2023). Like previous reviews, Wang et al. (2023) also discuss key methodological barriers that obscure their findings. Specifically, most studies were not randomized control trials which could impact accurate effect size estimation, most studies did not include intervention implementation information, and different gaming-related screening measures were used across studies (Wang et al., 2023). Alongside CBT, family therapy approaches have shown promise in supporting individuals and their families with IGD and gaming-related distress (Nielsen et al., 2021; Rajan et al., 2024). While systematic reviews of IGD treatment have consistently found few studies of family therapy and other psychological interventions, they do suggest future research is warranted to explore the benefits of having a range of different support approaches (Zajac et al., 2020; Dong et al., 2024).

In the United Kingdom, the NHS's National Centre for Gaming Disorders (NCGD) is the first specialised mental health service for gaming-related mental health difficulties (Sharman et al., 2022; Stokel-Walker, 2024). They provide both CBT and family therapy interventions for individuals and families impacted by gaming-related difficulties (Sharman et al., 2022; Central and North West London NHS Foundation Trust, n.d.). While the evidence base for the NCGD continues to emerge, high demand for support suggests that this has been an extremely important addition to the NHS's mental health offering (Stokel-Walker, 2024).

7. Research Gaps

Most research on young adult populations has focused on clinical levels of gaming- or anxiety-related distress (Männikkö, 2017; Wang et al., 2017; Gonzalez-Bueso et al., 2018; Gao et al., 2022). While a minority of young adult gamers with anxiety may meet clinical thresholds for GAD or IGD, many more may not and little is known about how gaming impacts their experience of anxiety. As most anxious individuals in the UK report more mild experiences (Office for National Statistics, 2024), it is imperative that this population is given greater research focus for a number of reasons.

Firstly, psychological research on subclinical and at-risk populations is needed to better understand the wider continuum of mental health and associated risk factors. This is critical to supporting prevention, early intervention, and treatment approaches for those impacted by mental health difficulties (APA, 2022). Dr Arthur Evans Jr., Chief Executive Officer of the American Psychological Association underscores the importance of this, saying:

> *If you're above that diagnostic line, you get help, and if you're below that diagnostic line, you don't… We really ought to have an intentional strategy for identifying people who are at greater risk in our communities, people who have subclinical issues, and helping to treat those issues and then helping to keep people healthy*. (Evans, as cited in American Psychological Association, 2024, pp. 2 - 3)

Secondly, research consistently demonstrates that individuals with subclinical GAD often experience significant anxiety-related distress and are at risk of escalating symptoms (Haller et al., 2014; Volz et al., 2022). Haller et al. (2014) carried out a systematic review on the impacts of sub-threshold GAD with a specific emphasis on psychosocial functioning. Based on their review of 18 epidemiological studies they found that sub-clinical levels of GAD were twice as prevalent as clinical levels of GAD. Despite not meeting clinical thresholds for GAD, this group experiences significant levels of distress and poorer psychosocial functioning compared to populations without

any GAD symptoms (Haller et al., 2014). Given the associations between gaming-related distress and anxiety amongst clinical populations, it is crucial to better understand how this group may, or may not, be at increased risk.

More research on the impacts of gaming on groups with less severe anxiety and gaming difficulties could help inform service provisions and types of support. Since its formation in 2019, the National Centre for Gaming Disorders (NCGD) has experienced much higher demand than anticipated (Sharman et al., 2022; Stokel-Walker, 2024). The referral process is very accessible and provides flexible support for individuals and families where gaming is the predominant area of concern (Central and North West London NHS Foundation Trust, n.d.). Understandably however, service users of the NCGD generally present with more severe levels of gaming difficulties (Sharman et al., 2022). Outside of this, support for gaming-related difficulties is highly limited in the NHS. This potentially puts individuals with less extreme levels of gaming and anxiety at risk of being overlooked by mental health professionals. On the one hand, mental health professionals may not refer someone to the NCGD without more pronounced or overt gaming disorder–related symptoms. On the other hand, non-gaming specific services may have less awareness of how gaming may relate to one's anxiety. More research is therefore required to understand the needs and vulnerabilities of this population, and how to minimize their risk of falling through the gaps of healthcare systems.

Moreover, several studies have highlighted the need for greater qualitative research to better understand gamers' perspectives on how and why gaming impacts their mental health (Männikkö, 2017; Shi et al., 2019). Existing qualitative studies on problematic gaming have provided invaluable insights, particularly in regards to development of excessive gaming (Griffiths, 2010), gaming stigma (Galanis & King, 2025), prevention opportunities (Stevens, Delfabbro, et al., 2021) motivation (Shi et al., 2019), treatment-seeking behaviours (Karhulahti et al., 2023), and experience of treatment (Beranuy et al., 2013). However, these studies also largely focus on gamers with 'problematic' presentations and more extreme impairment. No qualitative studies could be

identified that specifically focused on the relationship between gaming and anxiety amongst subclinical and less impacted groups of gamers.

References

Aarseth, E., Bean, A. M., Boonen, H., Colder Carras, M., Coulson, M., Das, D., Deleuze, J., Dunkels, E., Edman, J., & Ferguson, C. J. (2017). Scholars' open debate paper on the World Health Organization ICD-11 Gaming Disorder proposal. Journal of Behavioral Addictions, 6(3), 267-270.

Adams, B. L., Stavropoulos, V., Burleigh, T. L., Liew, L. W., Beard, C. L., & Griffiths, M. D. (2019). Internet gaming disorder behaviors in emergent adulthood: A pilot study examining the interplay between anxiety and family cohesion. International Journal of Mental Health and Addiction, 17, 828-844.

Adeoye-Agboola, D., & Evans, H. (2015). The relationship between anxiety and academic performance of postgraduate international students in a British University: A cross-sectional quantitative design. Science Journal of Public Health, 3(3), 331-338.

Alarachi, A., Merrifield, C., Rowa, K., & McCabe, R. E. (2024). Are we measuring ADHD or anxiety? Examining the factor structure and discriminant validity of the adult ADHD self-report scale in an adult anxiety disorder population. Assessment, 31(7), 1508-1524.

Alzahrani, A. K. D., & Griffiths, M. D. (2024). Problematic gaming and students' academic performance: A systematic review. International Journal of Mental Health and Addiction, 1-34.

American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders (Fourth Edition, Text Review ed.). American Psychiatric Association.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5 ed.). https://doi.org/https://doi.org/10.1176/appi.books.9780890425596

American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (5th ed., text rev.; DSM-5-TR) (Fifth Edition, text review ed.). https://doi.org/https://doi.org/10.1176/appi.books.9780890425787

American Psychological Association. (2023, November 15). *Adulthood.* In *APA Dictionary of Psychology*. https://dictionary.apa.org/adulthood

American Psychological Association. (2024). APA Member Town Hall: Psychology's role in advancing population health. https://www.apa.org/education-career/training/well-being-population-health-transcript.pdf

Arcelus, J., Bouman, W. P., Jones, B. A., Richards, C., Jimenez-Murcia, S., & Griffiths, M. D. (2016). Video gaming and gaming addiction in transgender people: An exploratory study. Journal of behavioral addictions, 6(1), 21-29.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American psychologist*, *55*(5), 469.

Banfi, R. (2024). Gaming I, II, and III: Arcades, Video Game Systems, and Modern Game Streaming Services. Games and Culture, 19(8), 1000-1037.

Barlow, D. H. (2004). Anxiety and its disorders: The nature and treatment of anxiety and panic. Guilford press.

Behar, E., DiMarco, I. D., Hekler, E. B., Mohlman, J., & Staples, A. M. (2009). Current theoretical models of generalized anxiety disorder (GAD): Conceptual review and treatment implications. Journal of anxiety disorders, 23(8), 1011-1023. https://doi.org/https://doi.org/10.1016/j.janxdis.2009.07.006

Benford, P., & Standen, P. (2009). The internet: a comfortable communication medium for people with Asperger syndrome (AS) and high functioning autism (HFA)? Journal of Assistive Technologies, 3(2), 44-53.

Beranuy, M., Carbonell, X., & Griffiths, M. D. (2013). A qualitative analysis of online gaming addicts in treatment. International Journal of Mental Health and Addiction, 11, 149-161.

Blanchflower, D. G., Bryson, A., & Bell, D. N. (2024). The Declining Mental Health of the Young in the UK.

Bonnaire, C., & Baptista, D. (2019). Internet gaming disorder in male and female young adults: The role of alexithymia, depression, anxiety and gaming type. Psychiatry research, 272, 521-530.

Bore, P., Andersson, M., Nilsson, S., Oehm, K., Cervin, M., Hakansson, A., & Claesdotter-Knutsson, E. (2025). Who seeks treatment for gaming? Characteristics of youth and adult patients seeking treatment for gaming disorder. Frontiers in Psychiatry, 16, 1629932.

Borkovec, T. D. (1994). The nature, functions, and origins of worry. In: G. Davey & F. Tallis (Eds.), Worrying: perspectives on theory assessment and treatment (pp. 5–33). Sussex, England: Wiley & Sons.

Borkovec, T. D., Alcaine, O. M., & Behar, E. (2004). Avoidance theory of worry and generalized anxiety disorder. In: R. Heimberg, C. Turk, & D. Mennin (Eds.), Generalized anxiety disorder: advances in research and practice (pp. 77–108). New York, NY, US: Guilford Press.

Brand, M., Wegmann, E., Stark, R., Müller, A., Wölfling, K., Robbins, T. W., & Potenza, M. N. (2019). The Interaction of Person-Affect-Cognition-Execution (I-PACE) model for addictive behaviors: Update, generalization to addictive behaviors beyond internet-use disorders, and specification of the process character of addictive behaviors. Neuroscience & Biobehavioral Reviews, 104, 1-10.

Brand, M., Young, K. S., Laier, C., Wölfling, K., & Potenza, M. N. (2016). Integrating psychological and neurobiological considerations regarding the development and maintenance of specific Internet-use disorders: An Interaction of Person-Affect-Cognition-Execution (I-PACE) model. Neuroscience & Biobehavioral Reviews, 71, 252-266. https://doi.org/https://doi.org/10.1016/j.neubiorev.2016.08.033

Burkauskas, J., Griskova-Bulanova, I., Đorić, A., Balhara, Y. P. S., Sidharth, A., Ransing, R., Thi, T. V. V., Huong, T. N., Kafali, H. Y., & Erzin, G. (2022). Association of Internet gaming

disorder symptoms with anxiety and depressive symptoms and substance use: an international cross-sectional study. Middle East Current Psychiatry, 29(1), 14.

Cabelguen, C., Rocher, B., Leboucher, J., Schreck, B., Challet-Bouju, G., Hardouin, J.-B., & Grall-Bronnec, M. (2021). Attention deficit hyperactivity disorder and gaming disorder: Frequency and associated factors in a clinical sample of patients with Gaming Disorder. Journal of Behavioral Addictions, 10(4), 1061-1067.

Cai, X., Cebollada, J., & Cortinas, M. (2022). From traditional gaming to mobile gaming: Video game players' switching behaviour. Entertainment Computing, 40, 100445.

Carter, R. M., Wittchen, H. U., Pfister, H., & Kessler, R. C. (2001). One-year prevalence of subthreshold and threshold DSM-IV generalized anxiety disorder in a nationally representative sample. Depression and anxiety, 13(2), 78-88.

Cekic, S., Bediou, B., Achab, S., Rich, M., Green, C. S., & Bavelier, D. (2024). Going beyond video game consumption when considering Internet Gaming Disorder. Comprehensive Psychiatry, 133, 152500. https://doi.org/https://doi.org/10.1016/j.comppsych.2024.152500

Central and North West London NHS Foundation Trust. (n.d.). National Centre for Gaming Disorders. https://www.cnwl.nhs.uk/national-centre-gaming-disorders

Chew, P. K., Lin, P. K., & Yow, Y. J. (2024). Cross-Cultural Differences in the Pathways to Internet Gaming Disorder. Asia-Pacific Psychiatry, 16(4), e12565.

Chew, P. K., Naidu, K. N., Shi, J., & Zhang, M. W. (2025). Prevalence and Correlates of (Internet) Gaming Disorder among Young Adults in Singapore. Psychiatric Quarterly, 1-19.

Clark, D. A., & Beck, A. T. (2011). Cognitive therapy of anxiety disorders: Science and practice. Guilford Press.

Close, J., Spicer, S. G., Nicklin, L. L., Lloyd, J., & Lloyd, H. (2022). Loot box engagement: relationships with educational attainment, employment status and earnings in a cohort of 16 000 United Kingdom gamers. Addiction, 117(8), 2338-2345.

Cohen, A. B., Wu, M. S., & Miller, J. (2016). Religion and culture: Individualism and collectivism in the East and West. Journal of Cross-Cultural Psychology, 47(9), 1236-1249.

Craske, M. G., Rauch, S. L., Ursano, R., Prenoveau, J., Pine, D. S., & Zinbarg, R. E. (2011). What is an anxiety disorder? Focus, 9(3), 369-388.

Csupak, B., Sommer, J. L., Jacobsohn, E., & El-Gabalawy, R. (2018). A population-based examination of the co-occurrence and functional correlates of chronic pain and generalized anxiety disorder. Journal of anxiety disorders, 56, 74-80.

Cudo, A., Wojtasiński, M., Tużnik, P., Fudali-Czyż, A., & Griffiths, M. D. (2022). The relationship between depressive symptoms, loneliness, self-control, and gaming disorder among Polish male and female gamers: The indirect effects of gaming motives. International journal of environmental research and public health, 19(16), 10438.

De Rosa, O., Baker, F. C., Barresi, G., Conte, F., Ficca, G., & de Zambotti, M. (2024). Video gaming and sleep in adults: A systematic review. Sleep medicine.

Demetrovics, Z., Urbán, R., Nagygyörgy, K., Farkas, J., Griffiths, M. D., Pápay, O., Kökönyei, G., Felvinczi, K., & Oláh, A. (2012). The Development of the Problematic Online Gaming Questionnaire (POGQ). Plos one, 7(5), e36417. https://doi.org/https://doi.org/10.1371/journal.pone.0036417

Dong, G.-H., Dai, J., & Potenza, M. N. (2024). Ten years of research on the treatments of internet gaming disorder: A scoping review and directions for future research. Journal of Behavioral Addictions, 13(1), 51-65.

Dos Santos, E. R. R., de Paula, J. L. S., Tardieux, F. M., Costa-e-Silva, V. N., Lal, A., & Leite, A. F. B. (2021). Association between COVID-19 and anxiety during social isolation: A systematic review. World journal of clinical cases, 9(25), 7433.

Dugas, M. J., Freeston, M. H., & Ladouceur, R. (1997). Intolerance of uncertainty and problem orientation in worry. Cognitive therapy and research, 21, 593-606.

Dullur, P., & Starcevic, V. (2018). Internet gaming disorder does not qualify as a mental disorder. Australian and New Zealand Journal of Psychiatry, 52(2), 110-111.

Elson, M., & Ferguson, C. J. (2014). Twenty-five years of research on violence in digital games and aggression. European Psychologist.

Eltahir, E., Delfabbro, P. H., & King, D. L. (2024). Autism in relation to gaming disorder and internet addiction: A systematic review. Computers in Human Behavior, 108443.

Engel, G. L. (1977). The need for a new medical model: a challenge for biomedicine. Science, 196(4286), 129-136.

Engelstätter, B., & Ward, M. R. (2022). Video games become more mainstream. Entertainment computing, 42, 100494.

Erevik, E. K., Landrø, H., Mattson, Å. L., Kristensen, J. H., Kaur, P., & Pallesen, S. (2022). Problem gaming and suicidality: A systematic literature review. Addictive Behaviors Reports, 15, 100419.

Estupiñá, F. J., Bernaldo-de-Quirós, M., Vallejo-Achón, M., Fernández-Arias, I., & Labrador, F. (2024). Emotional regulation in Gaming Disorder: A systematic review. The American Journal on Addictions, 33(6), 605-620.

Everitt, B. J., & Robbins, T. W. (2005). Neural systems of reinforcement for drug addiction: from actions to habits to compulsion. Nature neuroscience, 8(11), 1481-1489.

Galanis, C. R., & King, D. L. (2025). Stigma and other public perceptions of recreational gaming and gaming disorder: A large-scale qualitative analysis. Computers in human behavior reports, 17, 100581.

Gao, Y.-X., Wang, J.-Y., & Dong, G.-H. (2022). The prevalence and possible risk factors of internet gaming disorder among adolescents and young adults: Systematic reviews and meta-analyses. Journal of psychiatric research, 154, 35-43.

Garg, S., Kharb, A., Verma, D., Antil, R., Khanna, B., Sihag, R., & Lamba, D. (2023). The mediating role of sleep quality on the relationship between internet gaming disorder and

perceived stress and suicidal behaviour among Indian medical students. General psychiatry, 36(3), e100997. https://doi.org/https://doi.org/10.1136/gpsych-2022-100997

Gibson, E., Griffiths, M. D., Calado, F., & Harris, A. (2023). Videogame player experiences with micro-transactions: An interpretative phenomenological analysis. Computers in Human Behavior, 145.

Gioia, F., Colella, G. M., & Boursier, V. (2022). Evidence on Problematic Online Gaming and Social Anxiety over the Past Ten Years: a Systematic Literature Review. Current Addiction Reports, 9(1), 32-47. https://doi.org/https://doi.org/10.1007/s40429-021-00406-3

Gonzalez-Bueso, V., Santamaría, J. J., Fernandez, D., Merino, L., Montero, E., & Ribas, J. (2018). Association between Internet Gaming Disorder or Pathological Video-Game Use and Comorbid Psychopathology: A Comprehensive Review. International journal of environmental research and public health, 15(4), 668. https://doi.org/https://doi.org/10.3390/ijerph15040668

González-Cabrera, J., Caba-Machado, V., Díaz-López, A., Jiménez-Murcia, S., Mestre-Bach, G., & Machimbarrena, J. M. (2024). The mediating role of problematic use of loot boxes between internet gaming disorder and online gambling disorder: cross-sectional analytical study. JMIR Serious Games, 12, e57304.

Goodwin, R. D., Weinberger, A. H., Kim, J. H., Wu, M., & Galea, S. (2020). Trends in anxiety among adults in the United States, 2008–2018: Rapid increases among young adults. Journal of psychiatric research, 130, 441-446.

Griffiths, M. D. (2010). The Role of Context in Online Gaming Excess and Addiction: Some Case Study Evidence. International Journal of Mental Health and Addiction, 8(1), 119-125. https://doi.org/https://doi.org/10.1007/s11469-009-9229-x

Griffiths, M. D., Király, O., Pontes, H. M., & Demetrovics, Z. (2015). An overview of problematic gaming. Mental health in the digital age: Grave dangers, great promise, 27-45.

Griffiths, M. D., Kuss, D. J., Lopez-Fernandez, O., & Pontes, H. M. (2017). Problematic gaming exists and is an example of disordered gaming: Commentary on: Scholars' open debate paper on the World Health Organization ICD-11 Gaming Disorder proposal (Aarseth et al.). Journal of behavioral addictions, 6(3), 296-301.

Griffiths, M. D., & Pontes, H. M. (2020). A history and overview of video game addiction. The Oxford Handbook of Digital Technologies and Mental Health, 18-32.

Gu, X., & Mao, E. (2023). The impacts of academic stress on college students' problematic smartphone use and Internet gaming disorder under the background of neijuan: Hierarchical regressions with mediational analysis on escape and coping motives. Frontiers in psychiatry, 13. https://doi.org/10.3389/fpsyt.2022.1032700

Haagsma, M. C., Pieterse, M. E., Peters, O., & King, D. L. (2013). How gaming may become a problem: A qualitative analysis of the role of gaming related experiences and cognitions in the development of problematic game behavior. International Journal of Mental Health and Addiction, 11, 441-452.

Haidt, J. (2024). The anxious generation: How the great rewiring of childhood is causing an epidemic of mental illness. Penguin.

Haller, H., Cramer, H., Lauche, R., Gass, F., & Dobos, G. J. (2014). The prevalence and burden of subthreshold generalized anxiety disorder: a systematic review. BMC psychiatry, 14, 1-13.

Hammad, M. A., & Al-shahrani, H. F. (2024). Impulsivity and aggression as risk factors for internet gaming disorder among university students. Scientific Reports (Nature Publisher Group), 14(1), 3712. https://doi.org/https://doi.org/10.1038/s41598-024-53807-5

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? Behavioral and brain sciences, 33(2-3), 61-83.

Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. Computers in Human Behavior, 31, 351-354. https://doi.org/https://doi.org/10.1016/j.chb.2013.10.059

Karhulahti, V.-M., Behm, S., & Lukka, L. (2023). Why do adults seek treatment for gaming (disorder)? A qualitative study. Humanities & Social Sciences Communications, 10(1), 299. https://doi.org/https://doi.org/10.1057/s41599-023-01775-y

Kaufman, J., & Charney, D. (2000). Comorbidity of mood and anxiety disorders. Depression and anxiety, 12(S1), 69-76.

Kavanagh, M., Brett, C., & Brignell, C. (2023). What is the reported relationship between self-esteem and gaming disorder? A systematic review and meta-analysis. Computers in Human Behavior, 145, 107776.

Kim, E.-L., & Gentile, D. A. (2025). Recommendations for identifying and addressing addiction to video games. Journal of Health Service Psychology, 1-8.

Kim, H. S., Son, G., Roh, E.-B., Ahn, W.-Y., Kim, J., Shin, S.-H., Chey, J., & Choi, K.-H. (2022). Prevalence of gaming disorder: A meta-analysis. Addictive Behaviors, 126, 107183. https://doi.org/https://doi.org/10.1016/j.addbeh.2021.107183

King, D. L., Chamberlain, S. R., Carragher, N., Billieux, J., Stein, D., Mueller, K., Potenza, M. N., Rumpf, H. J., Saunders, J., Starcevic, V., Demetrovics, Z., Brand, M., Lee, H. K., Spada, M., Lindenberg, K., Wu, A. M. S., Lemenager, T., Pallesen, S., Achab, S.,…Delfabbro, P. H. (2020). Screening and assessment tools for gaming disorder: A comprehensive systematic review. Clinical Psychology Review, 77, 101831. https://doi.org/https://doi.org/10.1016/j.cpr.2020.101831

King, D. L., & Delfabbro, P. H. (2014). Is preoccupation an oversimplification? A call to examine cognitive factors underlying internet gaming disorder. Addiction, 109(9), 1566-1567.

King, D. L., & Delfabbro, P. H. (2017). Prevention and Policy Related to Internet Gaming Disorder. Current Addiction Reports, 4(3), 284-292. https://doi.org/https://doi.org/10.1007/s40429-017-0157-8

King, D., & Delfabbro, P. (2018). Internet gaming disorder: Theory, assessment, treatment, and prevention. Academic Press.

Király, O., Bőthe, B., Ramos-Diaz, J., Rahimi-Movaghar, A., Lukavska, K., Hrabec, O., Miovsky, M., Billieux, J., Deleuze, J., & Nuyens, F. (2019). Ten-Item Internet Gaming Disorder Test (IGDT-10): Measurement invariance and cross-cultural validation across seven language-based samples. Psychology of Addictive Behaviors, 33(1), 91.

Király, O., Griffiths, M. D., & Demetrovics, Z. (2015). Internet gaming disorder and the DSM-5: Conceptualization, debates, and controversies. Current Addiction Reports, 2(3), 254-262.

Király, O., Koncz, P., Griffiths, M. D., & Demetrovics, Z. (2023). Gaming disorder: A summary of its characteristics and aetiology. Comprehensive Psychiatry, 122. https://doi.org/https://doi.org/10.1016/j.comppsych.2023.152376

Király, O., Zhang, J., Demetrovics, Z., & Browne, D. T. (2022). Gambling features and monetization in video games create challenges for young people, families, and clinicians. Journal of the American Academy of Child and Adolescent Psychiatry, 1-3.

Ko, C.-H., Lin, H.-C., Lin, P.-C., & Yen, J.-Y. (2020). Validity, functional impairment and complications related to Internet gaming disorder in the DSM-5 and gaming disorder in the ICD-11. Australian & New Zealand Journal of Psychiatry, 54(7), 707-718.

Ko, C. H., Király, O., Demetrovics, Z., Griffiths, M. D., Kato, T. A., Tateno, M., & Yen, J. Y. (2023). Heterogeneity of gaming disorder: A clinicallybased typology for developing personalized interventions. Journal of behavioral addictions, 12(4), 855-861. https://doi.org/10.1556/2006.2023.00059

Koerner, N., & Dugas, M. J. (2006). A cognitive model of generalized anxiety disorder: The role of intolerance of uncertainty. Worry and its psychological disorders: Theory, assessment and treatment, 201-216.

Koncz, P., Demetrovics, Z., Takacs, Z. K., Griffiths, M. D., Nagy, T., & Király, O. (2023). The emerging evidence on the association between symptoms of ADHD and gaming disorder: A systematic review and meta-analysis. Clinical Psychology Review, 106, 102343.

Kuss, D. J., & Griffiths, M. D. (2012). Internet Gaming Addiction: A Systematic Review of Empirical Research. International Journal of Mental Health and Addiction, 10(2), 278-296. https://doi.org/https://doi.org/10.1007/s11469-011-9318-5

Kuss, D. J., Pontes, H. M., & Griffiths, M. D. (2018). Neurobiological correlates in internet gaming disorder: A systematic literature review. Frontiers in psychiatry, 9, 166.

Lang, P. J. (1968). Fear reduction and fear behavior: Problems in treating a construct. Research in psychotherapy conference, 3rd, May-Jun, 1966, Chicago, IL, US,

Larche, C. J., Chini, K., Lee, C., Dixon, M. J., & Fernandes, M. (2021). Rare loot box rewards trigger larger arousal and reward responses, and greater urge to open more loot boxes. Journal of gambling studies, 37, 141-163.

Lee, J. (2009). Universals and specifics of math self-concept, math self-efficacy, and math anxiety across 41 PISA 2003 participating countries. Learning and Individual Differences, 19(3), 355-365.

Lee, S.-H., Park, G.-H., & Kalinin, V. (2011). Psychophysiological markers of anxiety disorders and anxiety symptoms. Anxiety disorders, 203-226.

Li, F., & Aksoy, L. (2007). Dimensionality of individualism–collectivism and measurement equivalence of Triandis and Gelfand's scale. Journal of Business and Psychology, 21, 313-329.

Li, W., Mills, D., & Nower, L. (2019). The relationship of loot box purchases to problem video gaming and problem gambling. Addictive behaviors, 97, 27-34.

Liao, Z., Chen, X., Huang, Q., & Shen, H. (2022). Prevalence of gaming disorder in East Asia: A comprehensive meta-analysis. Journal of Behavioral Addictions, 11(3), 727-738.

Long, J., Bhad, R., Potenza, M. N., Orsolini, L., Phan, V., Kanabar, M., & Achab, S. (2022). Public health approaches and policy changes after the inclusion of gaming disorder in ICD-11: global needs. BJPsych international, 19(3), 63-66.

Lopez-Fernandez, O., Williams, A. J., & Kuss, D. J. (2019). Measuring female gaming: Gamer profile, predictors, prevalence, and characteristics from psychological and gender perspectives. Frontiers in psychology, 10, 898.

Lopez-Fernandez, O., Williams, A. J., Griffiths, M. D., & Kuss, D. J. (2019). Female gaming, gaming addiction, and the role of women within gaming culture: A narrative literature review. Frontiers in psychiatry, 10, 454.

Männikkö, N. (2017). Problematic gaming behavior among adolescents and young adults: Relationship between gaming behavior and health.

Männikkö, N., Ruotsalainen, H., Miettunen, J., Pontes, H. M., & Kääriäinen, M. (2020). Problematic gaming behaviour and health-related outcomes: A systematic review and meta-analysis. Journal of Health Psychology, 25(1), 67-81.

Marques, L., Robinaugh, D. J., LeBlanc, N. J., & Hinton, D. (2011). Cross-cultural variations in the prevalence and presentation of anxiety disorders. Expert review of neurotherapeutics, 11(2), 313-322.

Martončik, M., Ropovik, I., & Adamkovič, M. (2024). Development of gaming disorder: Underlying risk factors and complex temporal dynamics. Computers in Human Behavior, 153, 108112.

Mäyrä, F., & Alha, K. (2020). Mobile gaming. In The Video Game Debate 2 (pp. 107-120). Routledge.

Mclean, D. (1971). American Pie. On American Pie. United Artist Records.

Mennin, D. S., Heimberg, R. G., Turk, C. L., & Fresco, D. M. (2002). Applying an emotion

regulation framework to integrative approaches to generalized anxiety disorder. Clinical Psychology: Science and Practice, 9, 85–90.

Mennin, D. S., Heimberg, R. G., Turk, C. L., & Fresco, D. M. (2005). Preliminary evidence for an emotion dysregulation model of generalized anxiety disorder. Behaviour research and therapy, 43(10), 1281-1310.

Mennin, D. S., Turk, C. L., Heimberg, R. G., & Carmin, C. N. (2004). Regulation of emotion in generalized anxiety disorder. Cognitive therapy across the lifespan: Evidence and practice, 60-89.

Mental Health Foundation. (2023). Uncertain times: Anxiety in the UK and how to tackle it. M. H. Foundation. https://www.mentalhealth.org.uk/sites/default/files/2023-05/MHF-UK-Uncertain-times-Anxiety-in-the-UK-and-how-to-tackle-it-MHAW-2023-report.pdf

Mentzoni, R. A., Brunborg, G. S., Molde, H., Myrseth, H., Skouverøe, K. J. M., Hetland, J., & Pallesen, S. (2011). Problematic video game use: estimated prevalence and associations with mental and physical health. Cyberpsychology, Behavior, and Social Networking, 14(10), 591-596.

Monacis, L., Palo, V. d., Griffiths, M. D., & Sinatra, M. (2016). Validation of the internet gaming disorder scale–short-form (IGDS9-SF) in an Italian-speaking sample. Journal of Behavioral Addictions, 5(4), 683-690.

Monk, C. S., Nelson, E. E., McClure, E. B., Mogg, K., Bradley, B. P., Leibenluft, E., Blair, R. J. R., Chen, G., Charney, D. S., & Ernst, M. (2006). Ventrolateral prefrontal cortex activation and attentional bias in response to angry faces in adolescents with generalized anxiety disorder. American Journal of Psychiatry, 163(6), 1091-1097.

Moudiab, S., & Spada, M. M. (2019). The relative contribution of motives and maladaptive cognitions to levels of Internet Gaming Disorder. Addictive Behaviors Reports, 9, 100160.

Murray, A., Koronczai, B., Király, O., Griffiths, M. D., Mannion, A., Leader, G., & Demetrovics, Z. (2022). Autism, Problematic Internet Use and Gaming Disorder: A Systematic Review.

Review Journal of Autism and Developmental Disorders, 9(1), 120-140. https://doi.org/https://doi.org/10.1007/s40489-021-00243-0

Muthukrishna, M., Bell, A. V., Henrich, J., Curtin, C. M., Gedranovich, A., McInerney, J., & Thue, B. (2020). Beyond Western, Educated, Industrial, Rich, and Democratic (WEIRD) psychology: Measuring and mapping scales of cultural and psychological distance. Psychological science, 31(6), 678-701.

Newzoo. (2023). Global games market report, free version. https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2023-free-version

Neys, J. L., Jansz, J., & Tan, E. S. (2014). Exploring persistence in gaming: The role of self-determination and social identity. Computers in Human Behavior, 37, 196-209.

Ngah, S., Rahi, S., Long, F., Gabarre, C., Rashid, A., & Ngah, A. H. (2024). Future behavioural of console gamers and mobile gamers: are they differ? Quality & Quantity, 1-27.

NHS Digital. (2024). NHS Talking Therapies, for anxiety and depression, annual reports, 2023-34. https://digital.nhs.uk/data-and-information/publications/statistical/nhs-talking-therapies-for-anxiety-and-depression-annual-reports/2023-24#resources

Nielsen, P., Christensen, M., Henderson, C., Liddle, H. A., Croquette-Krokar, M., Favez, N., & Rigter, H. (2021). Multidimensional family therapy reduces problematic gaming in adolescents: A randomised controlled trial. Journal of Behavioral Addictions, 10(2), 234-243.

O'Brien, K., O'Keeffe, N., Cullen, H., Durcan, A., Timulak, L., & McElvaney, J. (2019). Emotion-focused perspective on generalized anxiety disorder: A qualitative analysis of clients' in-session presentations. Psychotherapy research, 29(4), 524-540.

Ofcom. (2025). Adults' media use and attitudes report 2025. Ofcom. https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/media-

literacy-research/adults/adults-media-use-and-attitudes-2025/adults-media-use-and-attitudes-report-2025.pdf?v=396240

Office for National Statistics. (2024). Quarterly personal well-being estimates – seasonally adjusted. https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/datasets/quarterlypersonalwellbeingestimatesseasonallyadjusted

Olatunji, B. O., Cisler, J. M., & Tolin, D. F. (2007). Quality of life in the anxiety disorders: a meta-analytic review. Clinical Psychology Review, 27(5), 572-581.

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(6), 334-354.

Pearcy, B. T., McEvoy, P. M., & Roberts, L. D. (2017). Internet gaming disorder explains unique variance in psychological distress and disability after controlling for comorbid depression, OCD, ADHD, and anxiety. Cyberpsychology, Behavior, and Social Networking, 20(2), 126-132.

Peri, J. (2024). Video gaming industry in the US. International Journal of Science and Research Archive, 11(1), 1257-1265.

Pontes, H. M., & Griffiths, M. D. (2015). Measuring DSM-5 internet gaming disorder: Development and validation of a short psychometric scale. Computers in Human Behavior, 45, 137-143.

Przybylski, A. K. (2014). Electronic gaming and psychosocial adjustment. Pediatrics, 134(3), e716-e722.

Qin, L., Cheng, L., Hu, M., Liu, Q., Tong, J., Hao, W., Luo, T., & Liao, Y. (2020). Clarification of the cut-off score for nine-item Internet Gaming Disorder Scale–Short Form (IGDS9-SF) in a Chinese context. Frontiers in psychiatry, 11, 470.

Raiha, S., Yang, G., Wang, L., Dai, W., Wu, H., Meng, G., Zhong, B., & Liu, X. (2020). Altered reward processing system in internet gaming disorder. Frontiers in psychiatry, 11, 599141.

Rajan, S. S., Uppal, G., Kansal, K., Okafor, U., & Dhandapani, A. (2024). The Role of Cognitive Behavioural Therapy, Family Therapy and Psychopharmacological Interventions in Internet Gaming Disorder: A Systematic Review. BJPsych Open, 10(S1), S82-S82.

Ringland, K. E. (2019). "Autsome": Fostering an autistic identity in an online minecraft community for youth with autism. Information in Contemporary Society: 14th International Conference, iConference 2019, Washington, DC, USA, March 31–April 3, 2019, Proceedings 14,

Robichaud, M., Koerner, N., & Dugas, M. J. (2019). Cognitive behavioral treatment for generalized anxiety disorder: From science to practice. Routledge.

Ross, D. R., Finestone, D. H., & Lavin, G. K. (1982). Space invaders obsession. Jama, 248(10), 1177-1177.

Schimmenti, A., Caretti, V., La Barbera, D., & American Psychiatric Association, B. J. J. B. B. N. D. W. D. K. C. C. (2014). Internet gaming disorder or Internet addiction? A plea for conceptual clarity. Clinical Neuropsychiatry: Journal of Treatment Evaluation, 11(3), 145-146.

Severo, R. B., Barbosa, A. P. P. N., Fouchy, D. R. C., da Cunha Coelho, F. M., Pinheiro, R. T., de Figueiredo, V. L. M., de Siqueira Afonso, V., Pontes, H. M., & Pinheiro, K. A. T. (2020). Development and psychometric validation of internet gaming disorder scale-short-form (IGDS9-SF) in a Brazilian sample. Addictive behaviors, 103, 106191.

Sharman, S., Roberts, A., Harris, B., Lockwood, R., & Bowden-Jones, H. (2022). The National Centre for Gaming Disorders (UK)-Who is accessing this service? Journal of Behavioral Addictions.

Shaw, A. (2012). Do you identify as a gamer? Gender, race, sexuality, and gamer identity. new media & society, 14(1), 28-44.

Shi, J., Renwick, R., Turner, N. E., & Kirsh, B. (2019). Understanding the lives of problem gamers: The meaning, purpose, and influences of video gaming. Computers in Human Behavior, 97, 291-303.

Singelis, T. M., & Brown, W. J. (1995). Culture, self, and collectivist communication: Linking culture to individual behavior. Human communication research, 21(3), 354-389.

Sixto-Costoya, A., Castelló-Cogollos, L., Aleixandre-Benavent, R., & Valderrama-Zurián, J. C. (2021). Global scientific production regarding behavioral addictions: An analysis of the literature from 1995 to 2019. Addictive behaviors reports, 14, 100371.

Slee, A., Nazareth, I., Freemantle, N., & Horsfall, L. (2021). Trends in generalised anxiety disorders and symptoms in primary care: UK population-based cohort study. The British Journal of Psychiatry, 218(3), 158-164.

Snodgrass, J. G., Lacy, M. G., Dengah II, H. F., Eisenhauer, S., Batchelder, G., & Cookson, R. J. (2014). A vacation from your mind: Problematic online gaming is a stress response. Computers in Human Behavior, 38, 248-260.

Soraya, S., Mahdavi, M., Saeidi, M., Seddigh, R., Nooraeen, S., Sadri, M., & Najafabadi, A. J. (2022). Prevalence of anxiety disorders and its co-occurrence with substance use disorder: a clinical study. Middle East Current Psychiatry, 29(1), 30.

Stankov, L. (2010). Unforgiving Confucian culture: A breeding ground for high academic achievement, test anxiety and self-doubt? Learning and Individual Differences, 20(6), 555-563.

Starcevic, V., & Aboujaoude, E. (2017). Internet Gaming Disorder, Obsessive-Compulsive Disorder, and Addiction. Current Addiction Reports, 4(3), 317-322. https://doi.org/https://doi.org/10.1007/s40429-017-0158-7

Stavropoulos, V., Frost, T. M. J., Brown, T., Gill, P., Footitt, T. A., & Kannis-Dymand, L. (2021). Internet gaming disorder behaviours: a preliminary exploration of individualism and collectivism profiles. BMC psychiatry, 21(1), 262.

Stevens, M. W., Delfabbro, P. H., & King, D. L. (2021). Prevention approaches to problem gaming: A large-scale qualitative investigation. Computers in Human Behavior, 115, 106611.

Stevens, M. W., Dorstyn, D., Delfabbro, P. H., & King, D. L. (2021). Global prevalence of gaming disorder: A systematic review and meta-analysis. Australian & New Zealand Journal of Psychiatry, 55(6), 553-568.

Stokel-Walker, C. (2024). Gaming addiction: how the NHS is tackling the problem. bmj, 387.

Sussman, S., & Arnett, J. J. (2014). Emerging adulthood: developmental period facilitative of the addictions. Evaluation & the health professions, 37(2), 147-155.

Szász-Janocha, C., Magann, M., Gold, H., Lindenberg, K., Delfabbro, P., & King, D. L. (2023). Problem gaming-related harm experienced by partners and parents of individuals with gaming problems and their help-seeking experiences. Journal of behavioral addictions, 12(1), 137-147.

Triandis, H. C., & Gelfand, M. J. (1998). Converging measurement of horizontal and vertical individualism and collectivism. Journal of personality and social psychology, 74(1), 118.

Tully, P. J., Cosh, S. M., & Baune, B. T. (2013). A review of the affects of worry and generalized anxiety disorder upon cardiovascular health and coronary heart disease. Psychology, health & medicine, 18(6), 627-644.

Turk, C. L., Heimberg, R. G., Luterek, J. A., Mennin, D. S., & Fresco, D. M. (2005). Emotion dysregulation in generalized anxiety disorder: A comparison with social anxiety disorder. Cognitive therapy and research, 29, 89-106.

Tushya, Chhabra, D., & Abraham, B. (2025). Social networking or social isolation? A systematic review on socio-relational outcomes for members of online gaming communities. Games and Culture, 20(3), 355-383.

Uskul, A. K., Thalmayer, A. G., Bernardo, A. B., González, R., Kende, A., Laher, S., Lášticová, B., Saab, R., Salas, G., & Singh, P. (2024). Challenges and opportunities for psychological research in the majority world. Collabra: Psychology, 10(1).

Villalba-García, C., Griffiths, M. D., Demetrovics, Z., & Czakó, A. (2025). The relationship between loot box buying, gambling, internet gaming, and mental health: Investigating the moderating effect of impulsivity, depression, anxiety, and stress. Computers in Human Behavior, 166, 108579. https://doi.org/https://doi.org/10.1016/j.chb.2025.108579

Volz, H.-P., Saliger, J., Kasper, S., Möller, H.-J., & Seifritz, E. (2022). Subsyndromal generalised anxiety disorder: operationalisation and epidemiology–a systematic literature survey. International Journal of Psychiatry in Clinical Practice, 26(3), 277-286.

Von Meduna, M., Steinmetz, F., Ante, L., Reynolds, J., & Fiedler, I. (2020). Loot boxes are gambling-like elements in video games with harmful potential: Results from a large-scale population survey. Technology in Society, 63, 101395.

Wang, C.-Y., Wu, Y.-C., Su, C.-H., Lin, P.-C., Ko, C.-H., & Yen, J.-Y. (2017). Association between Internet gaming disorder and generalized anxiety disorder. Journal of behavioral addictions, 6(4), 564-571.

Wang, X., Zhang, Y., Lin, J., Wong, A. C. W., Chan, K. K.-y., Wong, S. Y.-s., & Yang, X. (2023). Treatments of internet gaming disorder and comorbid mental disorders: A systematic review and meta-analysis. Computers in Human Behavior, 149, 107947. https://doi.org/https://doi.org/10.1016/j.chb.2023.107947

Wei, L., Zhang, S., Turel, O., Bechara, A., & He, Q. (2017). A tripartite neurocognitive model of internet gaming disorder. Frontiers in psychiatry, 8, 285.

Weinstein, A., & Aboujaoude, E. (2015). 3 Problematic Internet Use: An Overview. In E. Aboujaoude & V. Starcevic (Eds.), Mental health in the digital age: Grave dangers, great promise (pp. 0). Oxford University Press. https://doi.org/10.1093/med/9780199380183.003.0001

Wells, A. (1999). A cognitive model of generalized anxiety disorder. Behavior modification, 23(4), 526-555.

Wells, A. (2005). The metacognitive model of GAD: Assessment of meta-worry and relationship with DSM-IV generalized anxiety disorder. Cognitive therapy and research, 29, 107-121.

Wells, A. (2009). Metacognitive therapy for anxiety and depression / Adrian Wells. Guilford Press.

Wells, A. (2011). Metacognitive therapy for anxiety and depression. Guilford press.

Wolf, M. J. (2007). The video game explosion: a history from PONG to Playstation and beyond. Bloomsbury Publishing USA.

Wong, H. Y., Mo, H. Y., Potenza, M. N., Chan, M. N. M., Lau, W. M., Chui, T. K., Pakpour, A. H., & Lin, C.-Y. (2020). Relationships between severity of internet gaming disorder, severity of problematic social media use, sleep quality and psychological distress. International journal of environmental research and public health, 17(6), 1879.

World Health Organization. (2022). ICD-11: International classification of diseases (11th rev.). W. H. Organization. https://icd.who.int/

Yan, Y., Chen, J., Wang, H.-M., Xu, J.-J., & Gong, S. (2024). The mediating effect of social connectedness between internet gaming disorder and somatic symptoms in adolescents: a large sample cross− sectional study. BMC psychiatry, 24(1), 651.

Yao, Y. W., Zhang, J. T., Fang, X. Y., Liu, L., & Potenza, M. N. (2022). Reward-related decision-making deficits in internet gaming disorder: A systematic review and meta-analysis. Addiction, 117(1), 19-32.

Zahra, S., Ahsan, S., Kiani, S., Shahbaz, K., & Andleeb, S. N. (2020). Internet Gaming, Emotional Intelligence, Psychological Distress, and Academic Performance Among University Students. Pakistan Journal of Psychological Research, 35(2), 253-270. https://doi.org/https://doi.org/10.33824/PJPR.2020.35.2.14

Zainal, N. H., & Newman, M. G. (2018). Executive function and other cognitive deficits are distal risk factors of generalized anxiety disorder 9 years later. Psychological Medicine, 48(12), 2045-2053. https://doi.org/10.1017/S0033291717003579

Zainal, N. H., & Newman, M. G. (2022). Executive functioning constructs in anxiety, obsessive–compulsive, post-traumatic stress, and related disorders. Current Psychiatry Reports, 24(12), 871-880.

Zajac, K., Ginley, M. K., & Chang, R. (2020). Treatments of internet gaming disorder: a systematic review of the evidence. Expert review of neurotherapeutics, 20(1), 85-93.

Zakaria, H., Hussain, I., Zulkifli, N. S., Ibrahim, N., Noriza, N. J., Wong, M., Jaafar, N. R. N., Sahimi, H. M. S., & Abd Latif, M. H. (2023). Internet addiction and its relationship with attention deficit hyperactivity disorder (ADHD) symptoms, anxiety and stress among university students in Malaysia. Plos one, 18(7). https://doi.org/10.1371/journal.pone.0283862

Zendle, D. (2020). Beyond loot boxes: a variety of gambling-like practices in video games are linked to both problem gambling and disordered gaming. PeerJ, n/a. https://doi.org/https://doi.org/10.7717/peerj.9466

Zendle, D., & Cairns, P. (2018). Video game loot boxes are linked to problem gambling: Results of a large-scale survey. PloS one, 13(11), e0206767.

Chapter 2: Empirical Paper

"The Double-Edged Impacts of Gaming: A reflexive thematic analysis of the experiences of video game players with mild anxiety."

Abstract

Aims: Research has consistently found that anxiety and problematic gaming are associated in clinical populations of young adults, however little qualitative research has explored how anxiety and gaming may be related amongst subclinical populations. This project aims to qualitatively explore if, how, and why anxiety and gaming are related amongst young adult gamers with mild levels of anxiety.

Methods: Twelve individuals (aged 20 to 34 years old), who play video games regularly (three to seven days a week), with mild anxiety symptoms were individually interviewed using semi-structured interviews. A reflexive thematic analysis was used to analyze the transcript data and construct themes.

Results: Four interrelated themes were constructed: 'Impact of Gaming: A "Double-Edged" Coping Mechanism', 'Value-Driven Gaming: Gaming for the "Right" Reasons', 'Gaming in Childhood: "A Way to Survive"', 'Gaming Stigma and Stereotypes: "I Carry This Shame"'.

Conclusion: Gaming occupies a complex role in the lives of gamers with mild anxiety. It can provide both positive and negative impacts to one's wellbeing depending on the context. The emotional impacts of gaming are linked to how aligned or not it is to their personal values. The role of childhood and stigma are important factors that shape one's relationship to gaming. Mental health services should consider how to assess and formulate one's gaming behaviours in the context of their anxiety symptoms. While this offers a preliminary exploration of this under researched area, much more research is needed to better understand the link between anxiety and gaming amongst gamers with mild and subclinical anxiety.

Introduction

1. Background

With an estimated 3 billion video gamers worldwide (Newzoo, 2023), gaming represents a key intersection of technology and human interaction. Gaming is particularly popular amongst young adult populations, who, in line with APA definitions, are defined in this study as aged 18 to 35 years old (APA, 2023). A recent report by Ofcom estimates that 53% of all UK adults and 85% of 16 to 24-year-olds play video games regularly (Ofcom, 2025). The same report found that gaming levels peaked during the 2020 Covid-19 lockdowns, with 60% of adults reporting that they played video games compared to 39% in 2019 (Ofcom, 2025). As a consequence of gaming's rise in popularity and growing cultural significance, greater attention has been given to its wider psychological and social impacts (Engelstätter & Ward, 2022; Mendes et al., 2022; Király et al., 2023).

Growing concerns about the impact of gaming on mental health and social functioning have been raised by public health officials, policy makers, the media, and researchers (Long et al., 2022). This has contributed to the development of clinically defined diagnostic frameworks to capture gaming-related distress including the The Diagnostic and Statistical Manual of Mental Disorders' (5th Ed; DSM-5; American Psychiatric Association, 2013) 'condition for further study' Internet Gaming Disorder (IGD), and the International Classification Diseases-11 (ICD-11) Gaming Disorder (GD) (World Health Organization, 2022). These classifications, which are largely based on behavioral addictions, have supported more standardized research into patterns of gaming-related impairment (Griffiths et al., 2017). However IGD and GD remain controversial as constructs, with ongoing debates about their validity, cross-cultural applicability, and potential for over-pathologizing the use of gaming (Kardefelt-Winther, 2015; Király et al., 2015; Kardefelt-Winther et al., 2017). Despite these ongoing debates, the IGD and GD constructs are widely used in research. The vast majority of this research is quantitative and comprised of self-report surveys

that explore prevalence, severity, co-morbidities, and associations to psychosocial impacts (Van Rooij et al., 2014; Männikkö et al., 2020; Chang & Lin, 2023).

While this has contributed to invaluable research amongst individuals with problematic levels of gaming (Haagsma et al., 2013; Männikkö, 2017) little focus has been given to the more every day experiences of gamers who play regularly yet may not meet diagnostic thresholds. One barrier to this is that there is a scarcity of qualitative research on this population, with acknowledgment by scholars that more qualitative research is needed on 'normal gaming' and 'non-addictive subtypes' (Kaptsis et al., 2016). Karhulahti et al (2023) similarly emphasize the need for more focus on the perspectives of gamers to better inform the impacts of gaming across differing levels of gaming and mental health severity. Without the use of qualitative approaches, the lived experiences and nuanced insights of this group of gamers risk being overlooked.

There is a particular need for more research exploring the relationship between gaming and anxiety amongst young adults. Young adulthood is a period associated with both high levels of video game use (Engelstätter & Ward, 2022) and high rates of mild to moderate anxiety (Goodwin et al., 2020). As previously stated, recent estimates suggest that up to 85% of individuals aged 16 to 24 play video games regularly (Ofcom, 2025). Alongside this, a recent survey by the Mental Health Foundation (2023) found that 86% of 18- to 34-year-olds reported feeling anxious in the previous two weeks. This suggests a potentially large group of gamers that may experience symptoms of anxiety across different levels of severity. With rising rates of anxiety in young adult populations in recent decades, more knowledge is needed to better inform treatment and prevention approaches (Archer et al., 2022).

The literature-base on gaming and anxiety amongst young adults varies in regard to age-parameters, with some studies focusing exclusively on participants in their 20s (e.g., Gao et al., 2022) while others include participants in their early 30s (e.g., Shi et al., 2019). For the purpose of the current study "young adults" are defined as 18- to 35-year-olds. By including this broader age range, the author aims to widen the lens with which to explore the relationship between gaming

and anxiety along the continuum of young adulthood ranging from emerging adults (aged 18 to 25 years old) (Arnett, 2000) to those nearing middle adulthood (APA, 2023).

While higher levels of anxiety are consistently found to co-occur amongst young adult problematic gamers (Allison et al., 2006; King et al., 2019; Männikkö et al., 2020; Gao et al., 2022), little is currently known about the nature of this relationship amongst non-clinical groups of gamers. This is an important population to consider as those with subclinical or mild levels of anxiety often experience significant distress (Volz et al., 2022) and are vulnerable to developing more pronounced anxiety disorders in the future (Bosman et al., 2019).

Crucial to conceptualising anxiety is the role of coping and how this helps or hinders one's distress (Beck, 2020). While not specifically focused on anxiety, a small number of qualitative studies have provided important insights about how gaming can be used for coping with difficult emotions. Shi and colleagues (2019) who explored the meaning, purpose, and influences of video gaming amongst problematic gamers aged 16 to 35 years old found that gaming had positive and negative impacts on wellbeing. Participants described how gaming could provide meaning and purpose to their lives but could also contribute to distress and feeling 'addicted' when routinely used as a coping mechanism for life stress. The authors suggest that gaming itself was not 'the culprit', instead it was the absence of other coping mechanisms that appeared to maintain experiences of distress (Shi et al., 2019). Shi and colleagues (2019) further highlight the 'push' and 'pull' of gaming that participants experienced from personal, interpersonal, and environmental factors that influenced their gaming. This highlights the importance of considering wider contextual factors (i.e., relational, cultural, societal) when conceptualising gaming behaviours and motivations. An earlier study by Snodgrass and colleagues (2014) explored how problematic gaming, amongst gamers of World of Warcraft (a popular online role-playing game), was linked to managing life stress. Participants shared that playing World of Warcraft was highly effective at reducing short term feelings of stress through escapism or active engagement, however in times of heightened or 'overwhelming' stress it became difficult to disengage from playing (Snodgrass et

al., 2014). The authors discuss that while gaming can reduce stress through avoidance, if over-relied on for this purpose it can increase distress in the long term. A more recent study by Karhulahti and colleagues (2023) explored why gamers, with a mean age of 30.5 years old, had sought treatment for gaming-related difficulties, revealing a range of motivations including social, practical, and existential reasons. Participants in this study said that gaming interfered with their relationships, it had taken away meaning from other aspects of life, and it could impair work or academic performance. Furthermore, several participants expressed using gaming to escape and distract from anxiety but by doing so experienced ongoing distress (Karhulahti et al., 2023).

While adding valuable insights, these qualitative studies largely focus on populations who meet clinical thresholds of mental health or gaming difficulties. Consequently, little is known about how those with more mild anxiety symptoms may use gaming as a coping mechanism and its associated impacts. There is growing recognition of the need for more qualitative research in this field, particularly in exploring the wider spectrum of gaming-related difficulties (Park et al., 2021; Ballou et al., 2025) such as those with less severe presentations (Kaptsis et al., 2016). A recent narrative review by Ballou et al. (2025) highlights how qualitative approaches are an essential tool for supporting gamers themselves to share nuanced insights surrounding how gaming impacts their mental health. As there is a potentially large overlap of young adult gamers with mild anxiety symptoms, it is important that they be given a voice in research to share how gaming may or may not impact their experiences of anxiety.

1.1 The Current study

Given this research gap, the current study adopts a qualitative approach to explore the experiences and impacts of gaming amongst gamers with subclinical or mild levels of anxiety. The need for this is highlighted in both clinical and research findings with qualitative approaches being a valuable tool in previous, albeit few, studies examining gamers' perspectives on gaming behaviours

(Gonzalez-Bueso et al., 2018; Shi et al., 2019; Sharman et al., 2022; Galanis & King, 2025). The central research question of this study is: from the perspective of gamers with mild anxiety, how does gaming relate to their anxiety and why? While succinct, this research question aims to elicit open-ended responses regarding reasons for gaming, contextual factors that influence gaming, functions of gaming, and beliefs about how these relate to anxiety and emotional wellbeing. Overall, through this approach this study aims to add valuable information about the experience of anxious gamers that further research can build on to ultimately help inform clinical interventions and prevention strategies for this growing population.

2. Methods

2.1 Design

The current study employed a qualitative design using semi-structured interviews and reflexive thematic analysis. This study was an independent project part of a larger research UCL research project examining relationships between digital technology and anxiety and shame (See Appendix 1).

2.2 Ethics and Funding

Ethical approval for this study was obtained from the UCL Research Ethics Committee on 4th March 2025 (Ethics reference ID: CEHP/2024/597, Appendix 1). Participants were given a £10 Amazon voucher for participating in an interview, which was funded by the larger UCL research project.

2.3 Inclusion and exclusion criteria

Participants were considered eligible for inclusion if they were able to provide informed consent on the Qualtrics survey after reading the study information sheet and 1) were aged

between 18 and 35, 2) identified as a regular gamer, defined as playing games more 3 days a week on average, 3) currently lived in the United Kingdom to ensure they could access signposting support resources if necessary, 4) experience mild anxiety as indicated as a score of 5-9 on the Generalised Anxiety Disorder-7 measure (Spitzer et al., 2006), and 5) could participate in an online interview.

The inclusion criterion "regular gamer" is defined in this study as playing video games three or more days a week on average. This criterion was established through supervisory discussions and ongoing reflexivity, with the aim of measuring participants' engagement with gaming more broadly rather than framing it through the lens of diagnostic frameworks such as the Internet Gaming Disorder criteria (American Psychiatric Association, 2013, 2022). In line with the research question, this criterion shifts the focus from problematic gaming to everyday gaming experiences, potentially facilitating a wider range of perspectives on the relationship between gaming and mild anxiety.

Moreover, as this study aimed to explore the experiences of a sub-clinical population, potential respondents were encouraged via the Information Sheet not to complete the survey if they were experiencing more severe mental health difficulties. Participants who completed the survey but did not meet the inclusion criteria were informed over email that they would not be included and given a signposting resources document.

2.4 Recruitment

Recruitment of this study took place between March and April 2025. A convenience sampling method was employed by distributing a Qualtrics hyperlink to an online gaming forum as well as a nation-wide Trainee Clinical Psychologist WhatsApp group. Snowball sampling was also employed wherein the researcher distributed the Qualtrics to their personal and professional contacts to distribute to their own personal and professional networks.

The Qualtrics Survey that was developed and distributed included the Study Information Sheet, Consent Form, and a screening questionnaire (See Appendix 2 to 4). The screening questionnaire asked respondents for basic demographic information, if they identified as a regular gamer or not, if they were based in the UK, and to complete the Generalised Anxiety Disorder-7 questionnaire (Spitzer et al., 2006). If participants responded as 'an occasional gamer' or 'not based in UK' the Qualtrics survey would automatically end and skip to the final page which included mental health signposting information. Respondents who reached the end of the Qualtrics form were informed they would be contacted by email if they met the study's inclusion criteria and were then also presented with the final page that included mental health signposting information. The researcher then emailed respondents who met inclusion criteria to invite them to participate in an online interview using Microsoft Teams.

2.5 Participants

21 people responded to the Qualtrics survey, 12 of which met the inclusion criteria and were subsequently interviewed. Of the 9 respondents excluded from the interview stage, 1 respondent did not meet the criteria of being a regular gamer, 6 respondents did not meet the criteria for mild anxiety, and 2 respondents gave incomplete responses. The included sample comprised of 12 young adults living in the UK aged between 20 and 34 years old. Five participants identified as women and seven identified as men. The final sample size of 12 is considered appropriate for a medium scale thematic analysis within the context of a UK professional doctorate project (Braun & Clarke, 2019) and is in line with previous sample sizes of previous studies that have used thematic analyses for gaming research (Szolin et al., 2023).

Table 1 **Participant Characteristics**

Participant	Age	Gender	GAD-7 Score
1	22	Woman	7
2	31	Woman	5
3	34	Man	6
4	31	Woman	5
5	22	Woman	8
6	32	Man	7
7	23	Man	6
8	20	Woman	9
9	25	Man	5
10	25	Man	5
11	32	Man	7
12	25	Man	8

2.6 Semi-structured interviews and data collection

Semi-structured interviews at one time point were conducted with each participant between March and April 2025. Interviews took place remotely on Microsoft Teams and, with participants' consent, interviews were recorded and automatically transcribed via Microsoft Teams software. All interviews and transcripts were securely stored on UCL servers and transcripts were manually amended to check for accuracy. All transcripts were immediately anonymized after interviews by being given a number code (i.e., Participant 1) before being uploaded to the qualitative software program NVivo. Once transcription was completed all interviews were deleted.

The interview schedule (Appendix B) was split into three overarching sections orientated towards i) gaming patterns and motivations, ii) experience of gaming itself, and iii) wider impacts of gaming and view of other's perspectives on gaming. This interview structure aimed to provide participants an opportunity to speak openly and holistically about the impacts of their gaming and ways this may have changed from past to present. To so support this, care was taken to ensure questions were framed in a non-judgmental and balanced way. Through reflexive discussions with supervisors, and in line with an inductive approach, the interview questions did not explicitly ask about anxiety or problematic gaming and instead used more broad language such as 'wellbeing', 'impacts', 'worries'. The aim of this was to allow participants to share their perspective in their own words without having to frame responses based on imposed diagnostic language or researcher-based assumptions. Alongside these considerations, the researcher aimed to maintain a relaxed, welcoming, and flexible interview environment to support participants to feel comfortable sharing openly (Roulston, 2010).

2.7 Data analysis

Reflexive thematic analysis (RTA) was used for data analysis as it is well suited for addressing open-ended research questions (Braun & Clarke, 2019), particularly when the subject of interest is under-researched as is the case for the current study (Braun & Clarke, 2006). Braun & Clarke's (Braun & Clarke, 2006, 2019) approach to thematic analysis allows the researcher to identify patterns and construct themes that capture the nuanced and contextually rich meanings across a given data-set. Within this approach themes are not viewed as 'emerging' from the data but are instead constructed and refined through an iterative and reflective process (Terry & Hayfield, 2020). Braun and Clarke's conceptualization of thematic analysis has evolved over the

years to more emphatically recognize the central role and self-reflexivity of the researcher in knowledge production (Braun & Clarke, 2019; Byrne, 2022). Reflexive thematic analysis allows for the construction of themes to tell the 'story' of participants' chosen narratives through the lens of the researcher's subjective interpretation of the data (Braun & Clarke, 2019). In line with common practice of RTA only one coder, the researcher, was used (Braun & Clarke, 2022). This was supported by the use of note-taking, reflexive journalling, and transparency in code and theme development (See Appendix 5).

Braun and Clarke's (Braun & Clarke, 2006, 2021) 6 Phase approach was followed to facilitate the development of themes across the data set. In line with the reflexive approach, the researcher engaged in this process in a recursive and iterative manner to best facilitate the analysis (Braun & Clarke, 2021; Byrne, 2022):

Phase 1) 'Familiarization of the data': the researcher became deeply familiar with the data through the processes of transcribing, reading, rereading, and making initial notes of content that 'struck a chord'

Phase 2) 'Generating initial codes': NVivo software was used to create and organize short interpretative or descriptive labels of information that became initial codes that felt relevant to the research question.

Phase 3) 'Generating initial themes': Codes were iteratively organized into initial candidate themes to capture meaning and patterns across the data set in relation to the research question.

Phase 4) 'Reviewing themes': Candidate themes were reviewed for internal coherence as well as coherence in relation to other themes and the research question. NVivo and the website Miro were used to construct thematic maps to support this process.

Phase 5) 'Defining and naming themes': Definitions and names of themes evolved iteratively to best capture what they aimed to convey and their relevance to the research question.

Phase 6) 'Producing the report': vivid and informative excerpts were chosen to illustrate the concepts and meanings behind the themes and their links to the research question. An illustrative approach to RTA was taken wherein contextualizing to the evidence base was saved for the Discussion section (Byrne, 2022).

The researcher independently carried out all phases of the analysis and used research supervision to review final themes and the write-up of results. This supported the researcher to ensure that the included themes provided a coherent narrative of the data and were aligned to the research question.

2.8 Researcher's ontological and epistemological stance

Qualitative researchers should be transparent about the ontological and epistemological stances that underpin their interpretation of the data (Braun & Clarke, 2022). Here, a critical realist ontological approach was adopted which propones that while an independent reality ultimately exists, it is only understood and represented through the interplay of language, meaning, culture, and emotions (Maxwell, 2012; Braun & Clarke, 2022). From this perspective, participants provide the researcher a perception of their reality that is intrinsically mediated by their individual psychological, social, and cultural experiences (Willig, 2013). Alongside this, critical realism allows the researcher to situate and interpret participants' subjective experiences within the social contexts of the world around them (Sims-Schouten et al., 2007). In the context of the current study, a critical

realist RTA was chosen to anchor analysis to the participants' lived experience of video games and anxiety while also highlighting the social and cultural factors that may contribute to their experiences.

Further underlying the current study is the epistemological stance of contextualism, which posits that human experience cannot be separated from the social context one lives in (Tebes, 2005) and knowledge produced is inevitably shaped by the researcher's values and experience (Braun & Clarke, 2022). This recognizes the central role of the researcher's own subjectivity in RTA and how the researcher is actively part of the world they are trying to understand (Pilgrim, 2014). The contextualist approach was chosen as it allowed the researcher to consider their own interpretations of the data within the broader social and psychological contexts that shape how video games and anxiety are currently understood.

As very little qualitative research has explicitly examined the link between anxiety and gaming, it felt important to adopt an experiential approach for analysis to stay grounded to participants' own lived experience and perspectives (Braun & Clarke, 2022). A largely inductive, bottom up, approach was used to generate codes and eventual themes to best communicate the meanings communicated by participants (Braun & Clarke, 2013). As is common in RTA, aspects of deductive, or 'top down', analysis was used to ensure that, out of the wealth of rich content, themes remained relevant to the research question (Byrne, 2022). Both semantic (surface level) and latent (underlying/hidden meaning) coding was utilized to allow for the analysis of both explicit and implicit meanings. The researcher was able to utilize RTA's flexibility in moving from inductive-deductive and semantic-latent approaches when needed, particularly as the researcher began contextualizing themes with the literature base (Terry & Hayfield, 2020; Braun & Clarke, 2021).

2.9 Reflexivity statement

RTA not only recognizes the researcher's subjectivity but highlights this as an asset that can support 'reflexive and thoughtful engagement' with the interpretive process (Braun & Clarke, 2019; Byrne, 2022). This reflexive engagement was facilitated by reflective discussions with research supervisors, peers, professional contacts with experience working in gaming-focused services, and two presentations of the research project to colleagues. A reflective research journal was also kept throughout the process which will be discussed further in the Critical Appraisal chapter. A more in-depth reflexivity statement can also be found in the Critical Appraisal chapter which reflects on how the researcher's personal background, life experiences, and positions of privilege may have shaped the research process and analysis.

3. RESULTS

This study aims to explore how video games relate to the experience of anxiety amongst gamers with mild levels of anxiety. The reflexive and inductive approach taken in this analysis aims to tell the 'story' of participants' chosen narratives through the lens of the researcher's subjective interpretation of the data (Braun & Clarke, 2019). Out of this, the reflexive thematic analysis generated four overarching themes: 'Impact of Gaming: A "Double-Edged" Coping Mechanism', 'Value-Driven Gaming: Gaming for the "Right" Reasons', 'Gaming in Childhood: "A Way to Survive"', 'Gaming Stigma and Stereotypes: "I Carry This Shame"' (See Table 2). Together, these interrelated themes directly and indirectly capture the dynamic and multi-layered impacts that gaming has on the lived emotional experience of these 12 participants.

Table 2 **Themes and Subthemes**

Theme	Subtheme	Brief Definition	Prevalence of responses
Impact of Gaming: A "Double-Edged" Coping Mechanism	Positive impacts of gaming on wellbeing	In some scenarios gaming can help relieve anxiety and help participants build social connections.	11 participants
	Negative impact of gaming on wellbeing	When gaming is used as avoidance it can cause intense negative emotions including anxiety, shame, and guilt	12 participants
	Recognition of gaming's double-edged nature	Awareness and tension towards the different impacts gaming can have when used as a coping mechanism	10 participants
Value-Driven Gaming: Gaming for the "Right" Reasons	-	When gaming motivation is in line with personal values it is experienced as positive and fulfilling, when not in line with values it contributes to negative emotions	11 participants
Gaming in Childhood: "A Way to Survive"	-	Childhood experiences of using gaming to cope shape one's adult relationship to gaming	11 participants
Gaming Stigma and Stereotypes: "I Carry This Shame"	-	Negative narratives of gaming contribute to the experience of shame and feeling misunderstood	12 participants

3.1 Theme 1: Impact of Gaming: A "Double-Edged" Coping Mechanism

The first organizing theme describes how participants can experience gaming as both beneficial and harmful to their emotional wellbeing. All participants describe how video games play an important function in how they cope with difficult emotions and thoughts, albeit with varying levels of effectiveness. While participants largely view gaming as positive for their wellbeing, they highlight how it can have a 'double-edged' quality and has the capacity to both promote wellbeing as well as trigger or maintain distress. These experiences are not mutually exclusive, and participants describe both positive and negative impacts as often coexisting within the same experience. This contributes to a tension between gaming's role as adaptive and avoidant coping, with several participants expressing the ongoing dilemma in navigating the costs and benefits of gaming.

Theme 1.1: Positive impacts of gaming on emotional wellbeing and anxiety

Several participants describe how gaming can have positive impacts on their wellbeing by being an effective coping strategy for anxiety and stress:

So if I've had a particularly bad week, or particularly bad day, or if I've got something going on that I'm stressing out about or feel anxious about… I'll just pop video game in and then two hours can disappear without even realising and I suddenly feel a bit calmer and a bit centred. (Participant 3)

And also thinking, yeah, when I'm feeling more stressed, I will probably game a bit more because it then kind of is a good sort of distraction or immersion to get me away from kind of sort of ruminating on… on life. (Participant 6)

Participants highlight how gaming's escapist, immersive, and distracting qualities can elicit a sense of calm and relaxation that can help reduce rumination or feelings of external stress. This appeared to be particularly evident when participants described playing games they are familiar with and passionate about, suggesting that the consistency and agency provided by such games play a role in supporting the reprieve from negative emotions.

Alongside actively distancing from emotions, others found gaming to be a helpful way to regulate negative emotions through its capacity to elicit and express emotion within the player:

It's… cathartic. Sometimes it helps me to feel the feelings if I have been stuffing them all down to be able to survive… (Participant 4)

These accounts suggest that the virtual world of gaming represents a containing and safe environment to express emotion, exert control, and cope with the stress of daily life. Participants also reflect on how social connections built and maintained through gaming can positively impact their emotional wellbeing:

If anything, it's like my meditation… It's just about like having fun with friends. Like that is all that matters like… I use it to catch up with friends… we talk about anything like from… stupid stuff that no one cares about to like, really heavy life changing stuff. So I'm not really thinking about the games as much. I'm more thinking about what do I want to talk about with my friends. (Participant 9)

Beyond the benefits of togetherness, several participants value how gaming can facilitate a space to discuss both problem-free and problem-focused topics with trusted others via in-game chat functions. This pattern suggests that for some, a task-orientated activity like gaming could represent a more containing and safer medium to share emotions than in other more formal

settings. The online nature of gaming makes this kind of connecting and sharing highly accessible and not limited to geographical restrictions. One participant emphasises the positive impact of this during the lockdowns and socially isolating experience of the Covid-19 pandemic:

So over COVID, when you couldn't talk to anyone, gaming was incredible for that, my friend, who I mentioned that I have that tradition with on Mondays. He moved to [another town] two years ago, so now we don't see each other as much, but we do still keep in touch over the over the gaming and you know, we wouldn't be as close.

Overall, participants shared how, in certain contexts, gaming can have meaningful and positive impacts on wellbeing through emotion regulation and social connectedness. These potential emotional benefits, alongside participants' inherent passion for it, help illustrate gaming's appeal as a strategy for managing anxiety and stress.

Theme 1.2: Negative impacts of gaming on emotional wellbeing and anxiety

Alongside potential benefits, participants also voiced how gaming can contribute to a range of negative emotions and impacts on daily life. They describe how varying aspects of gaming, in certain contexts, could trigger experiences of anxiety, shame, and guilt.

Participants highlight that the emotional reprieve gained through gaming is often short-lived, causing distressing emotions to resurface with the same or higher intensity:

Ironically, the things… that I'm trying to push away from…. ironically then they come back, which I guess is part of that… distraction. It's just like a bit of a spring. Like, I'm kind of just… pushing it down and when I stop gaming, it just kind of comes up again and hits me in the face so it can be quite immediate (Participant 6)

It's the fact that you really haven't kind of got what you wanted out of that session because ultimately you're looking… to have fun, relax, all of those kinds of things. But instead, you have wound yourself up and are arguably more frustrated or anxious than you were before you started. (Participant 3)

In contrast with the previous subtheme, participants illustrate how gaming can prove counter-productive to sustainably suppressing emotions and thoughts. Participant 6's description of gaming as a 'spring' that 'comes up again and hits me in the face' vividly captures how negative thoughts avoided during gameplay can return with the same or greater intensity afterwards. Echoed by other participants, this highlights a frustrating cycle in which participants' gaming intentions and outcomes are misaligned, where efforts to avoid emotional distress can inadvertently maintain or increase it.

Gaming more specifically contributed to feelings of anxiety when it was viewed as interfering with professional or academic responsibilities, particularly when used as a procrastination strategy:

If I haven't done any work and directly play the game… I will have... the feeling of anxiety while I play the game. But it's kind of like I enjoy the moment… but in my heart is the voice saying 'you need to go work, you need to go work'. (Participant 7)

It does cause… cause like a bit of a panic usually the night the day before, when I'm like, 'Oh my God, I really need to get this done. I have like 8 hours to do this. Like, oh, crud' and I'm and then I have to rush. (Participant 8)

Participants appear to experience a sense of cognitive dissonance when choosing to play games over completing a work task or academic assignment. On one hand, gaming appeals to participants by being an accessible, effective and enjoyable short-term distraction strategy. On the other,

participants recognize that avoidant gaming can compound the initial pressure of the task and contribute to even greater levels of anxiety or panic. Underlying this tension is an implicit danger that gaming could indeed disrupt one's capacity to effectively manage work or studies, which if happened, would likely contribute to additional negative emotional and practical outcomes. The consistent referencing of academic and work-related stress as triggers for gaming suggests that times of high pressure, such as exams or approaching deadlines, could heighten one's vulnerability to the negative emotional outcomes of avoidant-coping or procrastination through gaming.

Adding further depth to the internal experience of gaming-related negative emotions, multiple participants shared how in-game frustration or isolation can contribute to intense feelings of shame and guilt post-gaming:

I guess rumination is the art of chewing things over and I get the sense of when I'm playing games just like, you know, not really getting anywhere. I then feel shame from doing that. I'm the kind of person that really finds it hard to be stuck when I recognize that 'Oh, I've just been engaging in like a stuck behaviour' that I probably haven't actually enjoyed… It then… kind of then triggers other thoughts like… You know… 'you got no friends that's why you're doing it'… Or, you know, 'if only you had some hobbies or only if you actually had some talent'… And then you get kind of some of those labels coming in, like, 'oh your a little bit of a coward' or 'you're a little bit of… a bit of an idiot' or 'you're not good enough'. (Participant 6)

This excerpt illustrates how, for some participants, self-criticism and negative self-evaluations can be triggered in the periods after prolonged or 'stuck' gaming sessions. Gaming in this context appears to set into motion a cycle of rumination that can leave individuals feeling ashamed or guilty for not meeting personal or societal expectations. This highlights the complex interplay of how one's experience of gaming may be intrinsically linked to their self-concept, suggesting that those with higher self-criticism may be more vulnerable to experiencing negative emotions in the aftermath of a gaming session.

Theme 1.3: Recognition of gaming's double-edged nature

Underlying what has been discussed appears to be a tension between gaming's capacity to promote and/or hinder psychological wellbeing. Several participants demonstrate an awareness of this duality and how gaming's 'double-edged' nature shapes their relationship to it:

It feels like you kind of fall back down to Earth… You're back in reality, the excitement's worn off and any kind of problems you were worried about… All the worries that you had before you started like "Oh well, now I have to deal with being an adult again"… It's a little bit of a weird roller coaster….Where you're like, really happy and relieved at the start and then that slowly fades and your kind of… "what can I do to avoid dealing with my own real life stuff in this situation? (Participant 3)

This excerpt highlights how participants recognize that gaming can both temporarily help cope with worry through avoidance and, simultaneously, contribute to further ruminating about the worries that initially motivated them to game. Multiple participants framed this dilemma through the tension between having adult responsibilities and their desire to play games to avoid such responsibilities. The 'rollercoaster' (P3) metaphor vividly illustrates this sentiment and how participants can experience a range of emotions in a single gaming session including stress, relief, happiness, and returning worry.

Alongside worry and stress, several participants described the double-edged impacts of gaming in the context of other emotional states such as low mood or feeling 'depressive':

If I'm… for example, in a depressive kind of period the gaming becomes a hindrance. Because of course it involves a lot of escapism. So it's a bit like I do not want to pay attention to real life right now... Overwhelmed… So I'm just going to go like, you know, fully immerse myself into the game and ignore everything else...And escape…. That's

when the games become a problem, because it becomes like a crutch... It can sometimes… snowball and spiral out of control… and you start, you know, maybe ignoring tasks in real life... (Participant 1)

Once again, this highlights participants' recognition that gaming can involve costs and benefits when used as a coping strategy. Its immersive and escapist qualities represent an appealing short-term remedy to difficult emotions, yet in some situations has the capacity to spiral into a cycle of avoidance that can cause significant impacts on daily life through avoidance or neglect of other responsibilities.

The tension underpinning the 'double-edged' nature of gaming extended to how some participants viewed their social interactions with other gamers:

Because it's such a social experience, like if the vibe of the group is negative… I'm very sensitive to that…I feel it's like a double-edged sword… I'm like, 'oh, you know, I wish you wouldn't get so frustrated'…I still buy into it. It's my choice to play, you know. (Participant 9)

For these individuals, their emotional experience can be influenced by the emotions expressed by their team-mates which can result in positive or negative impacts. They reflect that this is a highly uncertain dynamic as multiplayer experiences can be shaped by a range of factors including familiarity with team-mates, type of game, or level of competitiveness. This unpredictability, and the risk of feeling more distressed than before gaming, was highlighted as a dilemma when choosing to game.

Collectively, the 'double-edged' nature of gaming contributes to an emotionally laden weighing-up process that underpins how these participants engage with gaming and experience its impacts. This ongoing internal dilemma appears to trigger additional worry and anxiety, as participants consistently express concern towards both the actual and potential ways that gaming can maintain

or exacerbate existing distress. Without other styles of coping, particularly in periods of heightened stress, the ongoing uncertainty about gaming's helpfulness to manage emotions could further perpetuate feelings of being stuck, exhausted, or helpless.

3.2. Theme 2: Value-Driven Gaming: Gaming for the "Right" Reasons

This theme explores how participants' emotional outcomes of gaming are closely linked to how congruent their gaming motivations are to their personal values. A clear pattern emerged wherein participants experience gaming as helpful, worthwhile, and 'good' when it is perceived as being in line with their personal values of productivity, self-expression, moderation, and responsibility. Conversely, negative emotional outcomes are experienced when gaming is felt to have conflicted with these values leading to feelings of guilt, shame, and anxiety. Striking the right balance is not always straightforward, and participants share a common experience of navigating their gaming habits in the context of adult life and shifting responsibilities.

Several participants link positive or negative emotions directly with how productive or hard-working they have been before starting to game:

And I would say if I've worked really hard that day… There is nothing that could make me feel bad about playing games. If I've worked really hard, I've done a lot of work… I genuinely am very happy. But sometimes because of different influences, I don't feel that... I think if I've gamed excessively and… if I haven't enjoyed myself playing games, then I feel guilt… it's like 'how much work do I have to do'? 'How much work have I done today?' 'How much have I gamed?', 'How much have I enjoyed gaming?' (Participant 9)

Hard-work, productivity, and self-discipline are frequently referenced as important values amongst participants, and when acted upon can lead to feelings of contentment or happiness. Conversely,

when gaming is viewed as 'excessive' and misaligned with these values, it appears to evoke self-critical and worrying thoughts about how gaming has conflicted with work commitments. Several participants link these concerns to the 'opportunity cost' incurred by 'wasting time' gaming. One participant captures this sentiment in relation to playing alone 'the entire day' and a sense of regret over missed opportunities that this can evoke:

I would sometimes just be like, "wow, I wasted pretty much the entire day during Saturday and got nothing out of it in the game.…It does make me think about where could I have spent that time. When I was playing it alone, could I have been out with friends? Could I have been… I don't know, exercising? A lot of it is opportunity cost for me and I think… Yeah, I'd say it's it kind of comes back to that kind of guilt feeling of, you know, "am I spending my time the right way?" (Participant 10)

This illustrates how, for some participants, regret from playing alone for prolonged periods may stem from a perceived misalignment with personal values of achievement, productivity, desire to connect with others, and self-development. When this happens, they appear to experience guilt or self-directed frustration when their gaming behaviour does not satisfy the internal standards that define what spending time the 'right' way means to them.

A similar pattern can be found in how closely participants feel the function of their gaming is aligned with values of self-care, creativity, self-expression, and curiosity. Several participants provide touching accounts of the joy, fulfilment, and wonder that can be elicited when gaming in line with these principles. In contrast, they describe anxiety and discomfort when gaming is knowingly driven by a desire to distract or escape from problems. Participant 12 illustrates the complexities of this process, including the difficult emotions that arise when gaming drifts away from one's values:

I think we'd go two ways. Like if I'm in the state of mind where I'm actually enjoying the game, like fully enjoying it and I'm engaged with it and I know what's happening and stuff… Then I think it kind of leads into the sense of patient curiosity… I would describe it as a sort of lack of guilt… I think is an important one. So it's a very… it's a justified, it's a… it's a sense of justified kind of like "yes, this is OK. I'm playing this game because you know it makes me feel good". And so the other kind of state I would describe is that there is a sense of impatience. There is a sense of anxiety. There is a sense of guilt that I probably should be doing something else. There is a sense of guilt that I know that I'm in the game because I want to get to a certain feeling, but I'm not there.

Participant 12 describes how a 'lack of guilt' arises when gaming supports values such as seeking enjoyment, curiosity, meaningful engagement, and creativity. When this does not happen, the emotional experience can lead to anxiety and guilt and a grating sense that he should be 'doing something else'. As with other participants, this reflects the shared experience of an ongoing process to try and game in a balanced, value-driven way. One participant highlights both the importance of maintaining this balance, particularly in the context of having lived experience of mental health difficulties:

I think RPGs [Role Playing Games] are like reading a book… You're discovering a story. I kind of had some therapy for my sort of mental health issues and I kind of learned the kind of distinction between the function of my gaming... And then I was kind of very mindful of, like, 'OK why am I playing this game?' 'What's the kind of reason for it?' It's got to be a good story…. I've got to be invested in it. Yeah, otherwise I don't tend to play it as much again if the function is more just distraction. (Participant 6)

Among the few participants who discussed lived experience of mental health difficulties, there is a shared motivation towards being intentional in how they approach the functions of their gaming. Underlying this appears to be an awareness that avoidance and pure distraction could clash with values associated with personal fulfilment and self-care. This reflective stance allows participants

to stay grounded to these values and monitor whether their gaming behaviour is promoting emotional wellbeing or detracting from it.

This intentional and value-grounded approach to gaming is also important for participants with additional caring responsibilities, such as being a parent. For example, Participant 11 describes how despite not being able to game as much as he may like, his values of being a responsible, caring and loving parent supersede his individual desire to game:

I would like to consider myself a very sensible person and responsible, so I don't let it interfere with anything. I won't be playing a game while ignoring my kids in the background. I won't be trying to find excuses to play while I've got responsibilities. And it might get to the fact that I've cleared all my tasks. I've done the dishes, I've done the washing up, and then one of the kids wakes up. I'm like, "oh, no, I've got to do it". And you know, you love your kids. It's not frustration at them per se… but it's like, 'oh, that expectation to go and play has been pushed back'… It's almost like a reward based system in a way that because I have done my grown up life responsibilities, I now get to sit down and have a bit of enjoyment in the form of media that I enjoy.

This example illustrates how participants' relationship to gaming can evolve alongside the shifting priorities of adult responsibilities, including parenthood. For Participant 11, his values help guide him to ensure that gaming does not interfere with his higher priority of being a good father. Despite occasional frustration, this approach allows him to play games as a 'reward' for acting out these values, rather than game to avoid or escape his responsibilities. The concept of shifting values and competing demands of everyday life was echoed by many participants, including in relation to increased professional responsibilities or romantic relationships.

Overall, this theme describes how participants' emotional experience of gaming is closely related to the expression of their personal values. When participants engage in gaming in ways that

enact values such as productivity, self-care, and responsibility it is largely viewed as beneficial and enriching to their wellbeing. In contrast, many participants can undergo deeply painful experiences of shame, guilt, or anxiety when gaming conflicts with personal values through avoidance, distraction, or missed opportunities. Across different experiences and life-stages, participants share a recognition that values and priorities can shift and in turn require adjustments to how gaming fits meaningfully into their lives.

3.3 Theme 3: Gaming in Childhood: "A Way to Survive"

This theme aims to capture the central role that childhood circumstances played in the development of participants' gaming behaviours. The researcher was struck by the emotive narratives used by some participants to describe how gaming was a 'life saving' way to 'survive' and cope with difficult childhood experiences including poverty, domestic violence, mental health difficulties, and academic stress. Participants shared a common experience of how their current relationship to gaming has been influenced by their childhood contexts and, while still a meaningful activity, now requires ongoing reflection about its role in their adult lives.

In a painfully vivid and emotive excerpt, one participant describes how gaming helped him and his siblings cope through domestic violence, poverty, and neglect:

There are other times in my life where I've used gaming… for different reasons. When I was growing up, it was around domestic violence, it was around poverty. It was around neglect… it wasn't just immersive for me… My sister would come in and watch just to be out of the… communal space where there'd be fighting going on… I was a kid then… I didn't know that's what I was around. (Participant 6)

This account embodies a broader pattern described by multiple participants, who reflect on building a reliance on gaming during childhood to cope with distressing circumstances at home, such as financial hardship or parental alcoholism. Participant 6 explains how gaming represented an emotional refuge against a backdrop of deeply negative and anxiety provoking circumstances. His comment 'it wasn't just immersive' and 'my sister would come in and watch' suggests that in this context gaming played a relational function as much as an escapist one. Gaming in his room provided him and his siblings a safe place, together, away from the unsafe 'communal space' and a shelter from ongoing exposure to parental conflict and the witnessing of violence. He reflects that although he was 'a kid' and did not have a full awareness of what was happening, he did have an awareness that gaming helped him and could help protect his siblings. Other participants also highlight how shared experiences of gaming with siblings during difficult childhood experiences brought a sense of closeness and have even contributed to closer relationships in adulthood. In a later excerpt the same participant reflects on how his historic reliance on gaming has shaped his relationship with gaming as an adult:

If I didn't have gaming, certainly when I was younger and I was a bit… mentally unwell… I might not be alive… that's the reality of it, because I may not have had coping strategies… And that's where I think I'm very mindful of the function of how I use the video game… it's been a lifesaving crutch. (Participant 6)

This impactful statement captures how significant amounts of meaning and appreciation can be attached to gaming, particularly when it has played such a historically protective role. However, while once 'lifesaving' in childhood, Participant 6 recognises that its use in adulthood requires ongoing self-reflection and negotiation in a context of adult autonomy, mental 'wellness', and emotional safety. Other participants similarly reflect on the evolving role of gaming in their lives, and how over time they have attempted to draw on other coping strategies to maintain a more balanced relationship with gaming as an adult.

Alongside difficult home environments, academic pressure during childhood and adolescence emerged as a reason for increased reliance on gaming. Several participants share how gaming became a way to cope with the multi-faceted pressures of academic studies including exams, university admissions, and parental expectations. Participant 7 illustrates this by describing how his use of gaming to cope with academic pressure led to high levels of conflict with his parents:

We needed to make a lot of effort on studying to make sure we could get into a good college or good high school… I borrowed my friend's phone to play games… and it was found by my father and mother… they were very angry and they smashed that phone… It kind of almost broke the relationship between us. Those years were kind of the most stressful years of my life.

During the 'most stressful years' of his life, gaming appears to have played an important role in helping regulate high levels of anxiety and stress. In contrast, his parent's response of destroying the borrowed phone suggest a deep divide in how gaming was understood and valued. Rather than recognizing its role in helping their son cope, his parents viewed it as something so intolerable and unacceptable that it needed to be 'smashed'. It appears he interpreted this as a lack of empathy, understanding, and acceptance in a time he needed their support the most. While his parents may have intended to be supportive, their actions inadvertently deprived him of his primary way to navigate this difficult time. This account reflects other participants' experiences of feeling misunderstood by their parents, and a shared sense of disconnect with parents around the role of gaming as a coping mechanism for academic stress.

For many participants, their use of gaming to cope with difficulties as adults appears to be rooted in how they used it to manage challenges in childhood and adolescence. Now as adults with greater autonomy and different psychological needs, they express a value-driven responsibility to

strike a balance in navigating the positive and negative impacts of gaming on their wellbeing. More broadly, this reflects how gaming has evolved as a coping strategy across the lifespan and requires ongoing reflection from participants to ensure that it aligns with their current emotional needs, values, and adult responsibilities.

3.4 Theme 4: Gaming Stigma and Stereotypes: "I Carry This Shame"

This theme explores how negative societal narratives and stigma towards gaming can contribute to a sense of internalised shame and exacerbated psychological distress. Participants shared being exposed to a range of negative stereotypes and stigmatizing language used to describe gamers including 'immature', 'geeky', and an 'outcast of society who lives in a basement'. To varying degrees, stigma and judgment negatively impacted participants and for some it contributed to the experience of internal shame and guilt:

I think that gaming has a stigma to it. My friends… who don't play games, which is probably the majority are… are actively judgmental and my family is very judgmental. So I… I carry this shame or guilt…there's always that part of you that… Carries what other people think… that's difficult. (Participant 9)

The dilemma of navigating judgment from friends and family was shared across participants, with some participants feeling more impacted than others. Participant 9, for example, highlights how constant negative perceptions from others can lead to internalised feelings of shame. This experience was echoed by other participants, with shame often arising not from gaming itself but from inwardly directing the negative judgements from others who view it as socially unacceptable or "bad".

Another participant reflected on a related dilemma of feeling guilty for engaging in gaming as a form of self-care, and a wish for others to look beyond their preconceptions of gaming to recognise his need to look after his wellbeing:

There is a sense of guilt around doing that kind of self-care that I've experienced… stuff like 'don't feel guilty for playing games' or 'don't feel guilty for taking your time'… 'it's me time' if that makes sense. So I think that would be useful or it would be nice if people had that kind of idea that 'oh, he's gaming, he wants to be alone or he's… he's in his little zone and he's taking care of himself'. (Participant 12)

Both dilemmas reflect a broader pattern among participants, where the experience of stigma can lead to negative thoughts and emotions and an overall sense of feeling misunderstood by others. For some, this represents an added emotional burden wherein the desire to game to practice self-care or experience enjoyment is tarnished by both external and internal negative judgments, which likely further perpetuates negative self-evaluations of one's gaming.

The propagation of negative stereotypes was not only present in interactions with non-gamer friends and families, but in gamer communities as well. Participant 5, for example, describes the harmful impact that negative narratives from within the gaming population can have on marginalised groups, particularly towards women:

So most of my gamer friends are boys, so I don't want to be perceived as inferior to them. And sometimes they do have those kind of comments where they just think, you know, 'oh because she… she's a girl, she can't just play as well as us… makes you feel like you're inferior.

This account highlights the insidious nature of negative stereotypes and the distress they can cause to a gamer's experience and wellbeing, particularly when directed to a part of their identity. While

this participant recognises the discriminatory and inaccurate nature of these comments, her response illustrates how such experiences are difficult to ignore and can still cause feelings of marginalisation, social exclusion, and injustice. Several other participants also highlight how stigmatizing language or judgment from fellow-gamers can significantly reduce gaming's effectiveness as a strategy for relaxation, enjoyment, or managing anxiety. In situations such as this, participants are therefore subjected to both the effects of stigma and the loss of that gaming session's potentially positive coping benefits.

Overall, participants conveyed a shared sense that negative social narratives about gaming can foment feelings of being misunderstood, not cared for, and not accepted for who they are. Despite not always believing or agreeing with these narratives, some participants describe an inescapable experience of feeling ashamed or 'less than' because of their choice to game, even when it is done to promote psychological wellbeing. These accounts highlight that the multi-layered impacts of stigma, together with internal and external judgment, have the potential to damage one's self-esteem and emotional wellbeing.

4. DISCUSSION

Four interrelated themes were constructed to address this study's research question of the role of gaming and its impacts in the lives of regular gamers with mild levels of anxiety. Participants experience gaming as a 'double-edged' coping mechanism as it can both support emotional wellbeing as well as contribute to and maintain distress. Gaming in line with personal values tended to lead to more favourable emotions while gaming against personal values and internal expectations often contributed to anxiety, guilt, and shame. Childhood and adolescence played an important role in shaping how and why participants use gaming to cope with their emotions. Finally, the impacts of negative social narratives of gaming can lead to internalised shame which adds a layer of emotional burden in how one's gaming behaviour is viewed. Together, these themes suggest that the impacts of gaming in relation to anxiety are multilayered and highly nuanced. To explore the scope of this nuance, an integrative approach will be used to discuss how gaming was found to be related to anxiety in both directly and indirect ways.

4.1. Double-edged coping strategy

Participants described gaming as a complex and nuanced coping strategy for negative emotions, including anxiety. While gaming was generally seen as a positive activity, participants also acknowledged that under certain conditions it could perpetuate or even worsen negative emotions. This 'Double-Edged' quality of gaming aligns with Cognitive Behavioural Therapy (CBT) frameworks, which suggest that coping skills can be adaptive or maladaptive depending on the context and consequences (Beck, 2020).

Certain aspects of gaming experienced by participants could be viewed as adaptive behavioural forms of distraction and mood-regulation. Participants suggested that at times, gaming could provide temporary relief from external stress or negative mood states through escapism, distraction, and emotion expression. The ability to do this in a separate and contained game

environment, alongside feelings of accomplishment and creative expression, likely reinforces gaming's appeal as a 'helpful' activity. Moreover, the ability to foster relationships through gaming was highlighted as a key benefit, especially during the Covid-19 pandemic where social distancing and travel bans were in place (Williams et al., 2020). In these respects, gaming was shown to be adaptive by promoting social support and protecting against social isolation (Roohafza et al., 2014), both factors that can mitigate the impacts of anxiety.

In other circumstances, gaming was found to maintain or even exacerbate symptoms linked to anxiety. Participants shared that gaming can function as a form of avoidant coping, wherein an individual engages in activities that seek to avoid stressors to not subject oneself to the negative emotional outcomes this could cause (Sinha et al., 2024). Avoidance is a significant maintenance factor in anxiety (Grant et al., 2013) and the immersive aspects of games are likely an appealing and accessible vehicle for avoidance through escapism and distraction. Participants recognized that while avoidance through gaming could indeed provide short term relief, it often led to worries and anxieties returning and sometimes with greater intensity. From a CBT perspective, this represents a 'vicious cycle' wherein the behaviour (gaming) to cope with anxious situations (i.e., work tasks, self-critical thoughts) provides temporary relief (through avoidance) but fails to manage anxious feelings in the longer term, which can contribute to further distress and in turn a greater use of the avoidant coping (Clark & Beck, 2011). When used as avoidance, gaming may reinforce gamers belief that they cannot cope without it which could further limit their capacity to learn other more adaptive coping skills. Several participants showed an awareness of this vicious cycle and a sense of shame and guilt when they felt 'stuck' in it. This meta-cognitive awareness, or thinking about thinking, appears to have further contributed to negative self-appraisals including 'you are not good enough' and 'I am an idiot' (Participant 6). Individuals with anxiety are more likely to ruminate on self-critical thoughts and seek out ways to reduce these (Smart et al., 2016). In this context, the added experiences of guilt and shame likely further exacerbate anxiety (Fergus et al., 2010) which could again lead to a need to use gaming to cope.

The use of gaming as an avoidance strategy has been found in research on problematic gaming populations and linked with an array of negative psychological outcomes including anxiety (Melodia et al., 2020; Moge & Romano, 2020). While we did not screen for gaming addiction, this highlights that even for non-clinical populations it is crucial to consider the function and impact of one's gaming behaviours as this could provide valuable insight into how gaming adaptively or maladaptively relates to one's anxiety.

4.2 Role of Values

Participants highlighted how their personal values play a central role in their emotional experience of gaming. Positive or negative emotions, including anxiety, were consistently predicated on whether their gaming aligned with what they felt was important or meaningful according to their internal standards and beliefs about what is 'good' and 'valuable'. When gaming felt congruent to personal values (i.e., productivity, responsibility, social connection, self-expression, and self-care) participants reported highly positive emotional outcomes. In these situations, gaming was experienced as adaptive and helpful to wellbeing.

In stark contrast, participants described experiencing intensely negative emotions when gaming did not align with personal values. Gaming in this way was viewed as maladaptive and could contribute to self-criticism, shame, guilt, or feeling out of control. Participants provided many examples of this, including how some may reflect on the 'opportunity cost' of their decision to game. Opportunity cost refers to the value lost when choosing one activity over another (Mankiw, 2021), which in this context could be choosing gaming over other forms of important or meaningful activities (i.e., academic work, exercising, learning new skills). If participants felt gaming reflected their values (i.e., 'reward for working hard'-Participant 9, 'patient curiosity'-Participant 12) they felt gaming was worth the cost, whereas if it opposed their values (i.e., procrastination, pure distraction) it elicited regret, guilt, and self-criticism. This mirrors some aspects of the findings of Shi and colleagues (2019) wherein gaming was viewed as helpful and

worthwhile when done with a sense of purpose whereas when used, knowingly, as an over-reliant coping resource it could take on a problematic overture. As in their study, participants experienced feelings of achievement or reward from gaming (i.e., after a day of work) as positive to wellbeing, while gaming to distract or purely escape was experienced as unhelpful to wellbeing.

This value-orientated aspect of gaming can be understood through the framework of Acceptance and Commitment Therapy (ACT). ACT suggests that psychological wellbeing is maintained by engaging in value-congruent behaviours, even in the context of difficult or distressing experiences (Hayes et al., 2011). Conversely, psychological distress can be maintained when one engages in value-incongruent behaviours. The goal of ACT as an intervention for anxiety is to support psychological flexibility by engaging in value-driven actions as opposed to avoidance strategies (Twohig & Levin, 2017). LeJeune and Luoma (2019) describe values as the "direction you want your behaviour to move you toward. Like a compass". For participants in this study, their internal compass of underlying values seemingly played a pivotal role in why they choose to game as well as why they feel the way they feel in response to gaming.

The contrast between value congruent and incongruent gaming can also be understood through Self Determination Theory (SDT) (Deci & Ryan, 2012). SDT proposes that wellbeing and functioning is supported by engaging in behaviours that satisfy the psychological needs of autonomy, competence, and relatability (Deci & Ryan, 2012). Gaming behaviours that are in line with participants' values, such as creative expression or social connection, likely meet these psychological needs and contribute to a sense of fulfilment. Gaming behaviours that conflict with personal values, such as gaming to procrastinate, were often described as a source of anxiety or guilt. For gamers with existing anxiety symptoms, gaming in line with values could be underpinned by a sense of intrinsic, or internally driven, motivation which could lead to a more positive and helpful experience (Uysal & Yildirim, 2016) . Gaming against ones values may cause or escalate anxiety symptoms by reinforcing patterns of avoidance through escapism or distraction. This

highlights the complex interplay of motivation and values and the needs that may underpin why someone chooses to play games the way that they do

A multitude of factors influence one's internal sense of values and motivations including culture, upbringing, and social environments (Deci & Ryan, 2012; Sagiv et al., 2017), all of which are key factors to consider when exploring how one's values may shape their experiences of gaming in relation to their mental health. Young adulthood is generally considered a time of important transition and shifting values (Konstam, 2007; Bohlin & Hagekull, 2009), which we saw reflected by different participants who discussed how gaming had become less meaningful in the context of academic studies, career progression, and fatherhood. This underscores the contextually dependent impact that gaming has on gamers and further highlights that gaming is neither 'good' or 'bad'. Instead, the impacts of gaming on anxiety, alongside other emotions, appear to be intrinsically linked to its function and attached meaning in the context of one's value system. Together, this suggests that the different emotional experiences of gaming depend in part on how individuals internally evaluate the 'worthwhileness' of the experience based on their internal standards and value system.

4.3 Role of Childhood

Several participants highlighted how their relationship to gaming has been shaped by earlier life experiences, particularly in the context of using gaming to cope with Adverse Childhood Experiences (ACEs) (Felitti et al., 1998; Boullier & Blair, 2018). ACEs refer to stressful or potentially traumatic life experiences that occur in childhood and are linked to worse mental health outcomes in adulthood, including anxiety (Reiser et al., 2014; Poole et al., 2017; Davies et al., 2022). In the current study, gaming appears to have provided agency, escape, and distraction during difficult earlier experiences. In this context gaming can be seen as playing an adaptive role particularly as participants described adversity in the family home or in parental relationships, suggesting a lack of other significant forms of coping. This is in line with a recent study by Wang

et al. (2024) that found that while all ACEs were associated with escapist gaming motivations, family dysfunction was found to have the strongest association. Taken together, these suggest that gaming played an important role in overcoming adversity in childhood and became embedded as a reliable form of avoidance. However, as research suggests, the ongoing use of avoidant coping into adulthood can contribute to ongoing psychological impairment and anxiety (Sheffler et al., 2019). This theme is inter-related to previously discussed points, including how participants described the challenges of navigating the adaptive and maladaptive aspects of their gaming in the context of young adulthood. It also deeply related to the second theme of values, as childhood, family, and social contexts are key factors in the development of one's personal value system (Sagiv et al., 2017).

Importantly, this finding underscores the importance of considering one's developmental context and history of ACEs when formulating how their gaming behaviours have developed over time. This can provide key insight into the function of one's current gaming behaviours and support understanding around how it may relate to experiences of anxiety and other psychosocial difficulties.

4.4 Impact of Stigma

Several participants shared how negative narratives and stigmatized views towards gaming can negatively impact their wellbeing. Gaming-related stigma has been widely reported on previously, with a recent study by Galanis and King (2025) finding that some non-gamers described gamers in terms such as 'lazy', 'toxic', and 'childish'. These terms were echoed by some participants in the current study, with experiences of feeling judged by family, friends, and even other gamers. In relation to prejudice from fellow gamers, one participant described experiencing gender-based stigma through being viewed as 'inferior' at gaming (Participant 5) by men within her gaming circle purely because she is a woman. Despite this stereotype having been refuted in previous research (Shen et al., 2016), this account highlights the damaging emotional impact of gendered

assumptions even when individuals recognise them as unfounded. Misogynistic views and the sexualisation of characters that are women in games is an ongoing issue facing the gaming community and game design, and is a source of external toxicity that has been linked to poorer mental health outcomes, particularly for women gamers (Yao et al., 2010; Ballou et al., 2025).

Another stigmatising experience was observed in how several participants expressed feeling judged and misunderstood for why they engaged in gaming. Some described how when gaming is used to regulate emotions or promote self-care, it can be viewed by friends and family as 'bad' or a 'waste of time', which in turn can negatively impact the individual's own perception of their choice to use gaming this way. In all three excerpts of this theme we see a sense of self-stigma, wherein stigmatising beliefs widely held by a group or society can lead to an internalised belief in the individual that one is less valuable and worthy (Corrigan & Watson, 2002). Underlying this could be the experience of internal shame, or the shame-driven cognitions and emotions that one holds toward one's own attributes, characteristics, or behaviours (Gilbert, 2000). Importantly for the current study, internal shame can contribute to negative self-evaluations and self-criticism which can further maintain symptoms of anxiety (Fergus et al., 2010) and other forms of emotional distress such as depression (Prizeman et al., 2023). This suggests a particularly difficult dynamic for those subjected to gaming stigma, wherein the very activity they use (to varying degrees) to manage emotions and express themselves can also be a source of internal and external shame. This, coupled with everyday stressors that may trigger initial desires to game, could further contribute to one's experience of anxiety and other negative emotional states.

5. Clinical implications

These findings offer initial insights into clinical implications for supporting anxious individuals who regularly engage in gaming. While the current study examined participants with

mild, or 'sub-clinical' levels of anxiety, it provides insight into how to support such individuals if they were to present at university wellbeing support services or primary care services such as Talking Therapies. The need for this is underscored by a recent meta-analysis which found that individuals with subthreshold anxiety were 2.63 times more likely to develop clinical levels of anxiety compared to those without subthreshold anxiety (Zhong et al., 2024). In addition, many people with anxiety symptoms may never access treatment in the first place (Slee et al., 2021). 45% of participants in a UK based Mental Health Foundation survey reported that they kept their anxiety a secret due to fear of stigma and shame (Mental Health Foundation, 2023). As gaming remains highly stigmatized, anxious individuals who have tried using gaming to cope may be at even greater risk of feeling unable to access support without services reflecting more knowledge and understanding of gaming and mental health.

It is therefore important to consider how best to support individuals with lower levels of anxiety to protect against and prevent worsening of their symptoms. In the current context of regular gamers with anxiety, this could be facilitated by greater understanding and focus of gaming in mental health assessments, formulations, and where possible service-level teaching and training.

5.1 Assessment

University support services should consider the role of gaming in the lives of students that seek support, particularly when academic stress or anxiety are a key presenting difficulty. This could inform more tailored support and when necessary helpful signposting information to other relevant services. In an NHS context, there is growing recognition that mental health services should routinely explore digital technology use, including gaming, in mental health screening and assessments (Sedgwick et al., 2023). While recognising service-constraints and limited resources, the researcher recommends that where possible assessments for anxiety (and other MH conditions) build on routine assessment protocols to include questions about the use of digital technologies in relation to mental health. In line with person-centred care, mental health

professionals should use their skills of compassion and curiosity to assess how gaming behaviours may relate to one's experience of anxiety (Procter et al., 2022). As gaming is a highly stigmatized activity, clinicians should adopt a non-pathologizing approach and be mindful of their own assumptions or biases towards gaming (i.e., gaming is 'inherently bad') to best understand the client's experience. The current findings highlight the importance of exploring the function of gaming in relation to anxiety and how it may help or hinder coping, emotion regulation, and social connectedness. As gaming can be experienced as both adaptive and maladaptive, clinicians should enquire how, when, and in what ways gaming can be helpful or unhelpful.

The results also highlight how gaming can be shaped by childhood experiences particularly in the context of adversity and early life-stress. In line with a trauma-informed approach, assessments should ask 'what has happened that made gaming so important to you?' as opposed to 'you play games to cope? What is wrong with you?' (Sweeney et al., 2018). The trauma-informed approach is particularly essential to foster emotional safety for gamers who have experienced traumatic experiences and who may have also experienced the impacts of gaming stigma. Alongside this, a strengths-based approach should be used to assess for existing strengths and coping that may or may not be related to gaming.

5.2 Formulation

Where gaming is assessed to be a relevant factor in one's experience of anxiety, it should be carefully considered in the client's wider formulation. Psychological formulation is the process of conceptualising the development and maintenance of one's psychological difficulties to best inform intervention approaches (Cole et al., 2011) While many approaches to formulation exist, they should all aim to be person-centred and integrate the client's lived experience with psychological theory (Cole et al., 2011; Thrower et al., 2024).

The nuanced impacts of gaming could be conceptualised in existing CBT frameworks for anxiety by exploring how gaming may adaptively or maladaptively contribute to avoidance of

worry. The use of the 5-Areas model (Williams & Chellingsworth, 2010) alongside anxiety-specific models, such as the Intolerance of Uncertainty model (Dugas et al., 1997) offers a brief and accessible way to formulate how anxiety and gaming may relate through the relationship of one's thoughts, feelings, physical sensations, and behaviours. If gaming has become an unhelpful avoidant coping strategy for a client, this could support formulation about how its use could be reinforcing negative thought patterns that inadvertently maintain the experience of anxiety through a maintenance cycle (Beck, 2020).

Third-wave CBT approaches could provide further opportunity to formulate how gaming can help or hinder one's anxiety. This study's finding that personal values play a central role in the emotional experience of gaming suggests that formulating from an Acceptance-Based Commitment Therapy (ACT) perspective could prove helpful in conceptualising the role of gaming as it relates to anxiety. ACT's Hexaflex model could support formulations around how the use of gaming impacts one's psychological flexibility, or ability to adapt to difficult life experiences (Hayes et al., 2011). In particular, it could help identify when gaming is incongruent with values or a form of experiential avoidance, and support ways in which gaming could be used more in line with values alongside other meaningful activities in the person's life (Hayes et al., 2011). Formulating from ACT could promote less binary appraisals of gaming as 'good' or 'bad' and instead reframe it as an activity that has different functions that require ongoing reflections about how one wants to engage with it to best manage difficult emotional experiences, including anxiety.

5.3 Teaching, training and service-related research

University support services could consult with gaming societies and clubs through focus groups or surveys to have greater awareness about the mental health and lived experience of gamers at their institutions. This could help identify potentially at-risk groups and help inform prevention and targeted support strategies during term time and exam periods.

Where possible mental health services should consider teaching and training to facilitate learning about the psychological impacts of digital technologies and gaming. This could be supported by collaboration with game design, community, charity, and academic organisations to facilitate multi-disciplinary learning. Furthermore, access to resources and signposting information should be developed, including awareness of how and when to consider signposting to the National Centre for Gaming Disorders. Moreover, in line with recent Child and Adolescent Mental Health Services (CAMHS) initiatives, adult NHS services could carry out service-related research on the use of digital technologies amongst client populations (Maddison et al., 2024). Together, these approaches could promote learning that can better support clients who engage in gaming and have co-occurring mental health difficulties.

6. Strengths and limitations

Strengths

A primary strength of this study was in its focus on the less extreme ranges of impairment, which is more reflective of the wider population that may be accessing primary care mental health services. Participants were intentionally not screened for or asked in interviews about IGD or 'gaming addiction' to allow for a more open-ended exploration of if and how their gaming related to their wellbeing and experiences of anxiety. This is particularly important as gaming-related diagnoses are still in development and remain largely inaccessible to the general population (Park et al., 2021). Moreover, many gamers may not meet these developing clinical thresholds but still experience meaningful impacts on their wellbeing, particularly in relation to anxiety. Another strength of this study is in its qualitative approach which provided in-depth and rich detail about the lived experiences of gamers with anxiety, a population that has seen limited qualitative research. The voice of gamers is largely missing in the evidence base (Shi et al., 2019; Park et al., 2021) and as such this study adopted an inductive participant-led approach that was grounded in participant

perspectives. The avoidance of hypothesis driven questions and prescriptive language in interviews allowed participants to naturally share about experiences of gaming and anxiety without being overly primed by the researcher.

Limitations

Multiple limitations of this study should be acknowledged. The sample is subjected to self-selection bias, meaning that individuals may have volunteered as they are interested and confident in speaking and reflecting on their experiences (Elston, 2021), which could limit perspectives of less reflective or less confident gamers. This may have particularly been the case for individuals experiencing high amounts of gaming-stigma who may feel shame or discomfort openly speaking about their experiences. Moreover, the qualitative approach taken means that generalisability to the wider population is limited, however the researcher has aimed to situate proposed clinical implications within broader contexts (i.e., gamers with anxiety, NHS mental health services) in a pragmatic and realistic manner (Braun & Clarke, 2022).

Next, although this sample included participants from a range of ethnicities and cultural backgrounds, this was not formally recorded in recruitment and therefore not able to be commented on in depth in the study. This significantly limited exploration of different cultural factors and contexts that could shape one's experience of anxiety, gaming, values, and stigma (Wing Sue & Sue, 2008). A further limitation is that participants were not screened for mental health difficulties besides anxiety or problematic gaming. As anxiety commonly co-occurs with other conditions such as depression (Carter et al., 2001), responses may have potentially been shaped by the experience of other emotional difficulties. For example, one participant described gaming to cope when feeling 'depressive' indicating that low mood, alongside anxiety, drove motivation to game. Moreover, experiences of stigma and shame were largely framed in this study in relation to anxiety but importantly could also relate to other forms of emotional distress including depression (Prizeman et al., 2023). Together, these factors are important to consider

when interpreting the results as some participants may have shared a more nuanced experience of mental health and gaming beyond anxiety. A similar limitation is that the screening process did not collect information about neurodiversity which may have influenced the responses of potentially neurodivergent participants. For example, past research has shown that some autistic people may prefer online social interactions to face-to-face interactions (Benford & Standen, 2009; Ringland, 2019; Murray et al., 2022), which could increase attachment to gaming as a form of coping through promoting social connection. Relatedly, participants with Attention Deficit and Hyperactivity Disorder (ADHD) may have shared experiences influenced by difficulties with impulse control more so than participants without a diagnosis of ADHD (Koncz et al., 2023). Furthermore, both autistic and ADHD populations commonly experience heightened levels of societal stigma and stereotyping (Mueller et al., 2012; Hungerford et al., 2025), which could further compound negative emotions related to experiences of gaming-related stigma. While not a primary focus of the current study, it is important to acknowledge how neurodiversity may have influenced participants' perspectives on their relationship to gaming and the function of it in their lives.

7. Recommendations for future research

Future research should focus on the role of cultural contexts in how gaming relates to anxiety amongst gamers with anxiety. Cross-cultural studies could provide invaluable information about societal norms and expectations shape one's personal values and experience of gaming in relation to mental health. While literature on Internet Gaming Disorder populations has revealed wide-ranging cultural differences (Snodgrass et al., 2019; Stavropoulos et al., 2021), little research has explored how this influences less severe populations. Importantly, this would support

culturally competent research and clinical practice to be better suited to support the diverse populations of gamers and individuals with anxiety (Matsumoto & Van de Vijver, 2010).

Future studies should explore the influences of childhood, particularly adverse childhood experiences, on gaming's use as a coping mechanism for anxiety. Longitudinal studies could support this by tracking anxiety and gaming behaviours over time. This would provide important insight into what kinds of experiences may lead to an over-reliance on gaming which, as suggested in the current study, can have longer term unhelpful impacts in adulthood. This could ultimately inform psychoeducation and prevention approaches that support existing mental health interventions for those whose gaming has a significant impact on anxiety and distress.

Further research should explore the views of mental health professionals in relation to supporting anxious individuals whose gaming play a significant role. This could provide insight into the perceived knowledge, skills, and confidence amongst clinicians and highlight areas that require teaching and training. This could also provide insight into the narratives and biases that mental health professionals may hold, and support reflection on how stigma can be overcome to best engage with and support clients. With increasing populations of gamers and the potential inclusion of IGD in the next Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013, 2022), it is imperative that mental health professionals and services feel equipped to support this important and ever-increasing population.

Conclusion

This study used reflexive thematic analysis to add to our understanding of how gaming relates to anxiety amongst gamers who may fall below clinical diagnostic thresholds. Four interrelated themes illustrate the nuanced and contextually dependent impacts of gaming and how childhood experiences and the views of others can shape one's relationship to gaming. While these

findings share some overlap with research on 'problematic gamers' with mental health difficulties, they also offer considerations for clinical implications and future research that is more tailored to those in less extreme ranges of impairment. In conclusion, it is imperative that mental health professionals and researchers recognise the nuanced role that gaming can have on one's anxiety and approach this relationship with thoughtful engagement and compassion.

.

References

Allison, S. E., Lisa von, W., Shockley, T., & Gabbard, G. O. (2006). The Development of the Self in the Era of the Internet and Role-Playing Fantasy Games. The American Journal of Psychiatry,163(3),381.https://www.proquest.com/docview/220505967?accountid=14511&bdid=85848&_bd=A%2BLGCqWA4oPp62Qk6R%2FZwIdPGKE%3D

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5 ed.). https://doi.org/https://doi.org/10.1176/appi.books.9780890425596

American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (5th ed., text rev.; DSM-5-TR) (Fifth Edition, text review ed.). https://doi.org/https://doi.org/10.1176/appi.books.9780890425787

American Psychological Association. (2023, November 15). *Adulthood.* In *APA Dictionary of Psychology*. https://dictionary.apa.org/adulthood

Archer, C., Turner, K., Kessler, D., Mars, B., & Wiles, N. (2022). Trends in the recording of anxiety in UK primary care: a multi-method approach. Social Psychiatry and Psychiatric Epidemiology, 57(2), 375-386.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American psychologist*, *55*(5), 469.

Ballou, N., Hakman, T., Vuorre, M., Magnusson, K., & Przybylski, A. K. (2025). How do video games affect mental health? A narrative review of 13 proposed mechanisms.

Beck, J. S. (2020). Cognitive behavior therapy: Basics and beyond. Guilford Publications.

Benford, P., & Standen, P. (2009). The internet: a comfortable communication medium for people with Asperger syndrome (AS) and high functioning autism (HFA)? Journal of Assistive Technologies, 3(2), 44-53.

Bohlin, G., & Hagekull, B. (2009). Socio-emotional development: From infancy to young adulthood. SCANDINAVIAN JOURNAL OF PSYCHOLOGY, 50(6), 592-601.

Bosman, R. C., Ten Have, M., de Graaf, R., Muntingh, A. D., van Balkom, A. J., & Batelaan, N. M. (2019). Prevalence and course of subthreshold anxiety disorder in the general population: a three-year follow-up study. Journal of Affective Disorders, 247, 105-113.

Boullier, M., & Blair, M. (2018). Adverse childhood experiences. Paediatrics and Child Health, 28(3), 132-137.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative research in psychology, 3(2), 77-101.

Braun, V., & Clarke, V. (2013). Successful qualitative research: A practical guide for beginners.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. Qualitative research in sport, exercise and health, 11(4), 589-597.

Braun, V., & Clarke, V. (2021). Can I use TA? Should I use TA? Should I not use TA? Comparing reflexive thematic analysis and other pattern-based qualitative analytic approaches. Counselling and psychotherapy research, 21(1), 37-47.

Braun, V., & Clarke, V. (2022). Thematic analysis : a practical guide / Virginia Braun and Victoria Clarke. SAGE Publications Ltd.

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. Quality & quantity, 56(3), 1391-1412.

Carter, R. M., Wittchen, H. U., Pfister, H., & Kessler, R. C. (2001). One-year prevalence of subthreshold and threshold DSM-IV generalized anxiety disorder in a nationally representative sample. Depression and anxiety, 13(2), 78-88.

Chang, S.-M., & Lin, S. S. (2023). Developing Personas of Gamers with Problematic Gaming Behavior among College Students Based on Qualitative Data of Gaming Motives and Push–Pull–Mooring. INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH, 20(1), 798.

Clark, D. A., & Beck, A. T. (2011). Cognitive therapy of anxiety disorders: Science and practice. Guilford Press.

Cole, S., Johnstone, L., Oliver, D. N., & Whomsley, S. (2011). Good practice guidelines on the use of psychological formulation.

Corrigan, P. W., & Watson, A. C. (2002). Understanding the impact of stigma on people with mental illness. World psychiatry, 1(1), 16.

Davies, E., Read, J., & Shevlin, M. (2022). The impact of adverse childhood experiences and recent life events on anxiety and quality of life in university students. Higher Education, 84(1), 211-224.

Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. Handbook of theories of social psychology, 1(20), 416-436.

Dugas, M. J., Freeston, M. H., & Ladouceur, R. (1997). Intolerance of uncertainty and problem orientation in worry. Cognitive therapy and research, 21, 593-606.

Elston, D. M. (2021). Participation bias, self-selection bias, and response bias. Journal of the American Academy of Dermatology.

Engelstätter, B., & Ward, M. R. (2022). Video games become more mainstream. ENTERTAINMENT COMPUTING, 42, 100494.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. American journal of preventive medicine, 14(4), 245-258.

Fergus, T. A., Valentiner, D. P., McGrath, P. B., & Jencius, S. (2010). Shame-and guilt-proneness: Relationships with anxiety disorder symptoms in a clinical sample. Journal of anxiety disorders, 24(8), 811-815.

Galanis, C. R., & King, D. L. (2025). Stigma and other public perceptions of recreational gaming and gaming disorder: A large-scale qualitative analysis. COMPUTERS IN HUMAN BEHAVIOR REPORTS, 17, 100581.

Gao, Y.-X., Wang, J.-Y., & Dong, G.-H. (2022). The prevalence and possible risk factors of internet gaming disorder among adolescents and young adults: Systematic reviews and meta-analyses. JOURNAL OF PSYCHIATRIC RESEARCH, 154, 35-43.

Gilbert, P. (2000). The relationship of shame, social anxiety and depression: The role of the evaluation of social rank. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 7(3), 174-189.

Goodwin, R. D., Weinberger, A. H., Kim, J. H., Wu, M., & Galea, S. (2020). Trends in anxiety among adults in the United States, 2008–2018: Rapid increases among young adults. JOURNAL OF PSYCHIATRIC RESEARCH, 130, 441-446.

Grant, D. M., Wingate, L. R., Rasmussen, K. A., Davidson, C. L., Slish, M. L., Rhoades-Kerswill, S., Mills, A. C., & Judah, M. R. (2013). An examination of the reciprocal relationship between avoidance coping and symptoms of anxiety and depression. Journal of Social and Clinical Psychology, 32(8), 878-896.

Griffiths, M. D., Kuss, D. J., Lopez-Fernandez, O., & Pontes, H. M. (2017). Problematic gaming exists and is an example of disordered gaming: Commentary on: Scholars' open debate paper on the World Health Organization ICD-11 Gaming Disorder proposal (Aarseth et al.). Journal of behavioral addictions, 6(3), 296-301.

Haagsma, M. C., Pieterse, M. E., Peters, O., & King, D. L. (2013). How gaming may become a problem: A qualitative analysis of the role of gaming related experiences and cognitions in the development of problematic game behavior. International Journal of Mental Health and Addiction, 11, 441-452.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2011). Acceptance and commitment therapy: The process and practice of mindful change. Guilford press.

Hungerford, C., Kornhaber, R., West, S., & Cleary, M. (2025). Autism, Stereotypes, and Stigma: The Impact of Media Representations. Issues in Mental Health Nursing, 46(3), 254-260.

Kaptsis, D., King, D. L., Delfabbro, P. H., & Gradisar, M. (2016). Withdrawal symptoms in internet gaming disorder: A systematic review. Clinical Psychology Review, 43, 58-66. https://doi.org/https://doi.org/10.1016/j.cpr.2015.11.006

Kardefelt-Winther, D. (2015). A critical account of DSM-5 criteria for internet gaming disorder. Addiction Research & Theory, 23(2), 93-98.

Kardefelt-Winther, D., Heeren, A., Schimmenti, A., Van Rooij, A., Maurage, P., Carras, M., Edman, J., Blaszczynski, A., Khazaal, Y., & Billieux, J. (2017). How can we conceptualize behavioural addiction without pathologizing common behaviours? Addiction, 112(10), 1709-1715.

Karhulahti, V.-M., Behm, S., & Lukka, L. (2023). Why do adults seek treatment for gaming (disorder)? A qualitative study. Humanities and Social Sciences Communications, 10(1), 1-8.

King, D. L., Delfabbro, P. H., Perales, J. C., Deleuze, J., Király, O., Krossbakken, E., & Billieux, J. (2019). Maladaptive player-game relationships in problematic gaming and gaming disorder: A systematic review. Clinical Psychology Review, 73, 101777.

Király, O., Griffiths, M. D., & Demetrovics, Z. (2015). Internet gaming disorder and the DSM-5: Conceptualization, debates, and controversies. Current Addiction Reports, 2(3), 254-262.

Király, O., Koncz, P., Griffiths, M. D., & Demetrovics, Z. (2023). Gaming disorder: A summary of its characteristics and aetiology. Comprehensive Psychiatry, 122. https://doi.org/https://doi.org/10.1016/j.comppsych.2023.152376

Koncz, P., Demetrovics, Z., Takacs, Z. K., Griffiths, M. D., Nagy, T., & Király, O. (2023). The emerging evidence on the association between symptoms of ADHD and gaming disorder: A systematic review and meta-analysis. Clinical Psychology Review, 106, 102343.

Konstam, V. (2007). Emerging and young adulthood. Springer.

LeJeune, J., & Luoma, J. B. (2019). Values in therapy: A clinician's guide to helping clients explore values, increase psychological flexibility, and live a more meaningful life. New Harbinger Publications.

Long, J., Bhad, R., Potenza, M. N., Orsolini, L., Phan, V., Kanabar, M., & Achab, S. (2022). Public health approaches and policy changes after the inclusion of gaming disorder in ICD-11: global needs. BJPsych international, 19(3), 63-66.

Maddison, C., Wharrad, H., Archard, P. J., & O'Reilly, M. (2024). Exploring young people's perspectives on digital technology and mental healthcare: pilot study findings. Mental Health Practice, 27(1).

Mankiw, N. G. (2021). Principles of economics. Cengage Learning.

Männikkö, N. (2017). Problematic gaming behavior among adolescents and young adults: Relationship between gaming behavior and health.

Männikkö, N., Ruotsalainen, H., Miettunen, J., Pontes, H. M., & Kääriäinen, M. (2020). Problematic gaming behaviour and health-related outcomes: A systematic review and meta-analysis. Journal of Health Psychology, 25(1), 67-81.

Matsumoto, D., & Van de Vijver, F. J. (2010). Cross-cultural research methods in psychology. Cambridge University Press.

Maxwell, J. A. (2012). A realist approach for qualitative research. Sage.

Melodia, F., Canale, N., & Griffiths, M. D. (2020). The role of avoidance coping and escape motives in problematic online gaming: A systematic literature review. International Journal of Mental Health and Addiction, 1-27.

Mendes, L. O., Cunha, L. R., & Mendes, R. S. (2022). Popularity of video games and collective memory. Entropy, 24(7), 860.

Mental Health Foundation. (2023). Uncertain times: Anxiety in the UK and how to tackle it. M. H. Foundation. https://www.mentalhealth.org.uk/sites/default/files/2023-05/MHF-UK-Uncertain-times-Anxiety-in-the-UK-and-how-to-tackle-it-MHAW-2023-report.pdf

Moge, C. E., & Romano, D. M. (2020). Contextualising video game engagement and addiction in mental health: the mediating roles of coping and social support. HELIYON, 6(11). https://doi.org/10.1016/j.heliyon.2020.e05340

Mueller, A. K., Fuermaier, A. B., Koerts, J., & Tucha, L. (2012). Stigma in attention deficit hyperactivity disorder. ADHD attention deficit and hyperactivity disorders, 4(3), 101-114.

Murray, A., Koronczai, B., Király, O., Griffiths, M. D., Mannion, A., Leader, G., & Demetrovics, Z. (2022). Autism, Problematic Internet Use and Gaming Disorder: A Systematic Review. Review Journal of Autism and Developmental Disorders, 9(1), 120-140. https://doi.org/https://doi.org/10.1007/s40489-021-00243-0

Newzoo. (2023). Global games market report, free version. https://newzoo.com/resources/trend-reports/newzoo-global-games-market-report-2023-free-version

Ofcom. (2025). Adults' media use and attitudes report 2025. Ofcom. https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/media-literacy-research/adults/adults-media-use-and-attitudes-2025/adults-media-use-and-attitudes-report-2025.pdf?v=396240

Park, J. J., Wilkinson-Meyers, L., King, D. L., & Rodda, S. N. (2021). Person-centred interventions for problem gaming: a stepped care approach. BMC Public Health, 21(1), 872.

Pilgrim, D. (2014). Some implications of critical realism for mental health research. Social Theory & Health, 12, 1-21.

Poole, J. C., Dobson, K. S., & Pusch, D. (2017). Anxiety among adults with a history of childhood adversity: Psychological resilience moderates the indirect effect of emotion dysregulation. Journal of Affective Disorders, 217, 144-152.

Prizeman, K., Weinstein, N., & McCabe, C. (2023). Effects of mental health stigma on loneliness, social isolation, and relationships in young people with depression symptoms. BMC psychiatry, 23(1), 527.

Procter, N., Wilson, R. L., Hamer, H. P., McGarry, D., & Loughhead, M. (2022). Mental health: a person-centred approach. Cambridge University Press.

Reiser, S. J., McMillan, K. A., Wright, K. D., & Asmundson, G. J. (2014). Adverse childhood experiences and health anxiety in adulthood. Child Abuse & Neglect, 38(3), 407-413.

Ringland, K. E. (2019). "Autsome": Fostering an autistic identity in an online minecraft community for youth with autism. Information in Contemporary Society: 14th International Conference, iConference 2019, Washington, DC, USA, March 31–April 3, 2019, Proceedings 14,

Roohafza, H. R., Afshar, H., Keshteli, A. H., Mohammadi, N., Feizi, A., Taslimi, M., & Adibi, P. (2014). What's the role of perceived social support and coping styles in depression and anxiety? Journal of research in medical sciences: the official journal of Isfahan University of Medical Sciences, 19(10), 944.

Roulston, K. (2010). Considering quality in qualitative interviewing. Qualitative research, 10(2), 199-228.

Sagiv, L., Roccas, S., Cieciuch, J., & Schwartz, S. H. (2017). Personal values in human life. Nature Human Behaviour, 1(9), 630-639.

Sedgwick, R., Bittar, A., Kalsi, H., Barack, T., Downs, J., & Dutta, R. (2023). Investigating online activity in UK adolescent mental health patients: a feasibility study using a natural language processing approach for electronic health records. BMJ Open, 13(5), e061640. https://doi.org/10.1136/bmjopen-2022-061640

Sheffler, J. L., Piazza, J. R., Quinn, J. M., Sachs-Ericsson, N. J., & Stanley, I. H. (2019). Adverse childhood experiences and coping strategies: Identifying pathways to resiliency in adulthood. Anxiety, Stress, & Coping, 32(5), 594-609.

Shen, C., Ratan, R., Cai, Y. D., & Leavitt, A. (2016). Do men advance faster than women? Debunking the gender performance gap in two massively multiplayer online games. Journal of Computer-Mediated Communication, 21(4), 312-329.

Shi, J., Renwick, R., Turner, N. E., & Kirsh, B. (2019). Understanding the lives of problem gamers: The meaning, purpose, and influences of video gaming. Computers in Human Behavior, 97, 291-303.

Sims-Schouten, W., Riley, S. C., & Willig, C. (2007). Critical realism in discourse analysis: A presentation of a systematic method of analysis using women's talk of motherhood, childcare and female employment as an example. Theory & Psychology, 17(1), 101-124.

Sinha, S., Sharma, M. K., Narayanan, G., Kashyap, H., Shreedevi, A., & Tadpatrikar, A. (2024). A systematic review of problematic gaming: Escapist strategy to cope with difficult life situations. Industrial Psychiatry Journal, 33(2), 210-218.

Slee, A., Nazareth, I., Freemantle, N., & Horsfall, L. (2021). Trends in generalised anxiety disorders and symptoms in primary care: UK population-based cohort study. The British Journal of Psychiatry, 218(3), 158-164.

Smart, L. M., Peters, J. R., & Baer, R. A. (2016). Development and validation of a measure of self-critical rumination. Assessment, 23(3), 321-332.

Snodgrass, J. G., Lacy, M. G., Dengah II, H. F., Eisenhauer, S., Batchelder, G., & Cookson, R. J. (2014). A vacation from your mind: Problematic online gaming is a stress response. Computers in Human Behavior, 38, 248-260.

Snodgrass, J. G., Zhao, W., Lacy, M. G., Zhang, S., & Tate, R. (2019). The cross-cultural expression of internet gaming distress in North America, Europe, and China. Addictive Behaviors Reports, 9, 100146.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. Archives of internal medicine, 166(10), 1092-1097.

Stavropoulos, V., Frost, T. M. J., Brown, T., Gill, P., Footitt, T. A., & Kannis-Dymand, L. (2021). Internet gaming disorder behaviours: a preliminary exploration of individualism and collectivism profiles. BMC psychiatry, 21(1), 262.

Sweeney, A., Filson, B., Kennedy, A., Collinson, L., & Gillard, S. (2018). A paradigm shift: relationships in trauma-informed mental health services. BJPsych Adv, 24(5), 319-333. https://doi.org/10.1192/bja.2018.29

Szolin, K., Kuss, D. J., Nuyens, F. M., & Griffiths, M. D. (2023). "I am the character, the character is me": A thematic analysis of the user-avatar relationship in videogames. Computers in Human Behavior, 143, 107694.

Tebes, J. K. (2005). Community science, philosophy of science, and the practice of research. American Journal of Community Psychology, 35(3-4), 213-230.

Terry, G., & Hayfield, N. (2020). 38. Reflexive thematic analysis. Handbook of qualitative research in Education. Edward Elgar Publishing Limited, 430-441.

Thrower, N. E., Bucci, S., Morris, L., & Berry, K. (2024). The key components of a clinical psychology formulation: A consensus study. British Journal of Clinical Psychology, 63(2), 213-226.

Twohig, M. P., & Levin, M. E. (2017). Acceptance and commitment therapy as a treatment for anxiety and depression: a review. Psychiatric clinics, 40(4), 751-770.

Uysal, A., & Yildirim, I. G. (2016). Self-determination theory in digital games. Gamer psychology and behavior, 123-135.

Van Rooij, A. J., Kuss, D. J., Griffiths, M. D., Shorter, G. W., Schoenmakers, T. M., & Van de Mheen, D. (2014). The (co-) occurrence of problematic video gaming, substance use, and psychosocial problems in adolescents. Journal of behavioral addictions, 3(3), 157-165.

Volz, H.-P., Saliger, J., Kasper, S., Möller, H.-J., & Seifritz, E. (2022). Subsyndromal generalised anxiety disorder: operationalisation and epidemiology–a systematic literature survey. International Journal of Psychiatry in Clinical Practice, 26(3), 277-286.

Wang, L., Chen, Y., Li, Z., Zhou, Y., Li, J., Lv, X., Yu, Z., & Gao, X. (2024). The Influences of Adverse Childhood Experiences and Social Support on Male Teenagers' Gaming

Motivation: A Moderated Network Analysis. Journal of Pediatric Health Care, 38(4), 486-496.

Williams, C., & Chellingsworth, M. (2010). CBT: A Clinician's guide to using the five areas approach. CRC Press.

Williams, S. N., Armitage, C. J., Tampe, T., & Dienes, K. (2020). Public perceptions and experiences of social distancing and social isolation during the COVID-19 pandemic: A UK-based focus group study. BMJ Open, 10(7), e039334.

Willig, C. (2013). EBOOK: introducing qualitative research in psychology. McGraw-hill education (UK).

Wing Sue, D., & Sue, D. (2008). Counseling the culturally diverse: Theory and practice. John Wiley & Sons, Inc.

World Health Organization. (2022). ICD-11: International classification of diseases (11th rev.). W. H. Organization. https://icd.who.int/

Yao, M. Z., Mahood, C., & Linz, D. (2010). Sexual priming, gender stereotyping, and likelihood to sexually harass: Examining the cognitive effects of playing a sexually-explicit video game. Sex roles, 62, 77-88.

Zhong, Q., Niu, L., Chen, K., Lee, T. M. C., & Zhang, R. (2024). Prevalence and risk of subthreshold anxiety developing into threshold anxiety disorder in the general population. J Affect Disord, 367, 815-822. https://doi.org/10.1016/j.jad.2024.09.031

CHAPTER 3: CRITICAL APPRAISAL

Introduction

This chapter describes a range of influences, decisions, challenges, and opportunities that I experienced in conducting this research. I shall first describe the process of planning the project and the dilemma of choosing what to research. Next, I describe challenges I faced in conceptualizing and writing Chapter One. After this, I present an extended reflexivity statement that describes how my professional and personal experiences may have shaped the analytic process. Finally, I reflect on different processes of the reflexive thematic analysis.

Planning the project

I experienced a dilemma in choosing which mental health concepts to focus on and which aspects of gaming to explore in the initial planning of the project. Working with two supervisors with expertise in computer science and clinical psychology respectively, helped me navigate this dilemma and provided an incredible opportunity for interdisciplinary learning and collaboration. Both offered unique perspectives that supported and challenged me to consider what I, as the researcher, wanted to devote my thesis to. The integration of these different perspectives curated my interest in wanting to research how mental health and video games intersect and impact on an individual's lived experience.

Through familiarization with the literature base it became clear that problematic gaming (PG) was a key focus of research as well as its links to a range of negative psychosocial outcomes (Király et al., 2023). Alongside anxiety, problematic gaming is associated with depression (Männikkö et al., 2020), social anxiety (Gioia et al., 2022), ADHD (Koncz et al., 2023), and substance misuse (Mills et al., 2020). On a broader level it is also linked to poorer life satisfaction (Bargeron & Hormes, 2017), poorer self-esteem (Kavanagh et al., 2023), and impacts on relationships (Szász-Janocha et al., 2023). Adding to my dilemma was the knowledge that differences have been observed across game types, gaming platforms, and game design elements (King et al., 2019; Rehbein et al., 2021). While each of these are important and related topics, I felt

drawn to narrow my focus to anxiety due to the overlap of high levels of anxiety (Archer et al., 2022) and high levels of gaming in young adult populations (Engelstätter & Ward, 2022). Moreover, I observed that many studies showed that anxiety was closely linked to the experience of problematic gamers, but few had explored this relationship in 'non' problematic groups. This left me very curious and concerned that there may be many gamers with anxiety, and yet the research base knows very little about how gaming may or may not relate to their mental health.

Navigating Challenges with Chapter One

I originally aimed to complete a systematic review to explore the association between anxiety and problematic gaming. However, in early 2025 I changed course to a conceptual introduction approach. A recurring challenge I encountered was in navigating the wide-ranging heterogeneity that exists in how problematic gaming is conceptualized, measured, and approached in research. As discussed in the Conceptual Introduction, the lack of standardized approaches to many aspects of gaming-related research has been widely reported in the wider literature base. A systematic review by King et al. (2020) found that amongst 320 included studies there were 32 gaming disorder screening and assessment tools used. These tools were used to measure a range of conceptualizations of problematic gaming, not just Internet Gaming Disorder (American Psychiatric Association, 2013) or Gaming Disorder (World Health Organization, 2022). They further highlight how symptom coverage of gaming difficulties is inconsistent across these 32 tools and not all have been evaluated psychometrically (King et al., 2020). Relatedly, cut-off scores for were similarly found to be inconsistent across studies which obscures what actually constitutes as problematic or disordered (King et al., 2020). In consequence, my initial search terms yielded extremely large numbers of results that varied greatly in constructs of PG, assessment of PG, and interpretation of PG scores and cut-offs. Another challenge I encountered was in navigating the wide-ranging methodologies that have been used to study this topic. This is widely reported challenge in prevalence studies of problematic gaming (Kim et al., 2022) and highlighted as a key

barrier in overall research on this topic (Stevens et al., 2021). A further complication I encountered was the wide range of mental health tools used to measure anxiety. While some studies used common measures such as the Generalized Anxiety Disorder-7 (Spitzer et al., 2006) or the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995), many did not which made interpretation of results more difficult.

I recognized my lack of experience in conducting systematic reviews from the onset and endeavored to gain the necessary skills by discussing with supervisors, sourcing key guidance books, and attending all available course teachings. Despite this, there were multiple times I believed I had made substantial progress to discover I had missed key steps which detracted from the methodological quality of the review. Each of these failed attempts was difficult and disheartening, particularly given the large amount of time and effort I had put in. Through ongoing communication with supervisors I was eventually able to narrow the search to studies that include IGD and Generalized Anxiety Disorder (GAD) specific measures (Spitzer et al., 2006; Pontes & Griffiths, 2015). While this did help reduce some variation in regards to constructs and measures, sample characteristics and methodologies continued to be highly heterogenous. By early 2025, I had extracted the necessary data from included studies but had yet to synthesize any results. Not only had this process taken me longer than expected, I continued to worry that the vast heterogeneity of included studies alongside my lack of confidence would reduce the methodological quality of the review. Given the relatively slow progress and ongoing methodological concerns, it was advised by my supervisors that I abandon the systematic review and instead write a Conceptual Introduction.

On one hand this was a very difficult decision, as by that point I had screened over 5000 journal articles and spent countless hours on several iterations of the review. On the other hand, this instilled a sense of relief as a conceptual introduction felt like a better methodological fit for the complicated and nascent state of both the topic and the research base. Had I focused purely on IGD and GAD I would have risked neglecting a wide range of broader themes and significant

literature that adds to my overall research question. Instead, I feel confident I was able to provide an overview of the research landscape while highlighting the relevant challenges, opportunities, and wider factors related to the topic. On reflection, I likely would have benefitted from switching to a Conceptual Introduction much earlier in the process. In some ways I regret that I used up so many study days trying to 'push on' when I should have realized that a broader approach allowed for by the conceptual introduction would have been a better fit from the start. In future literature reviews I hope to have more space to reflect on how overall progress is going and having more confidence to recognize when I need to reorient my approach to best support the study aims.

Reflexivity statement

In an earlier iteration of the write up this section was included in the Empirical Paper chapter. However, it felt important to place in this chapter so I could add more depth to how my own personal background, life experiences, and positions of privilege may have shaped how I engaged with the research process and analysis.

I was interested in undertaking this project for both professional and personal reasons. Professionally, I am a trainee clinical psychologist with an interest in how mental health and technology intersect. Through my work I have garnered both curiosity and concern about how future generations will navigate the growing integration of technology in everyday life. This has likely been shaped by my experiences of working with children, young people, and families. While anecdotal, nearly every young person I have ever worked with has engaged with video games. Through this I have been able to observe how gaming can range from being a simple leisure activity to a highly meaningful part of one's identity. I have also reflected that asking clients about their digital habits can often both build rapport as well as provide more information about their daily lives and behaviours. For example, I have worked with many clients who used gaming to pass the time or connect with friends during long hospital admissions. While working in a neurodevelopmental service, I was able to learn from some clients that they feel more comfortable

talking to their friends on a gaming headset than in person. Conversely, I have also worked with clients whose gaming has impacted their sleep, led to conflict with family members, and even disrupted therapy sessions. On more than one occasion I have experienced clients attempting to finish time-bound daily reward game tasks at the start of a therapy session. While somewhat disruptive, I've noticed that these can be an opportunity to be curious about their uses of gaming. Together, these previous experiences gave me a sense that gaming is an important activity for many service-users and can occupy different roles and functions. In regards to reflexive thematic analysis, my interpretive lens was likely influenced by my clinical work experiences. Specifically, I gravitated towards themes that conveyed nuance, complexity, and the role of childhood influences. Had I not had my previous experiences I may have interpreted the data in other ways.

Certain personal influences also likely shaped by analytic process in this project. I have had the opportunity to spend large parts of my childhood living in the United States, the United Kingdom, and Hong Kong. Playing video games with siblings or friends was often a constant and stabilizing force in times of significant transition. This was particularly the case when I moved to Hong Kong as a young adolescent, where members of a local youth group invited me to gaming-cafes and Guitar Hero competitions. Years later during the Covid-19 pandemic, gaming allowed me to connect with family members and friends who lived in different countries. Amidst the anxiety provoking and socially isolating context of the pandemic, gaming was an activity I could look forward to and feel a sense of consistency with. These experiences likely influenced my initial interest in wanting to research how gaming relates to mental health and how it can function as more than just a form of entertainment. I also think these experiences have helped me understand the different levels of meaning that gaming as a social vehicle can bring. For example, I included a quote by a participant discussing how he uses gaming to 'open-up' with his friends. While many participants shared similar sentiments, I wonder if I would have included this particular quote had I not had my past experiences of social interactions through gaming.

As a DClinPsy student I hold a degree of power and privilege in being able to choose what and how to research. I have aimed to use this privilege to support the 'voice' of these gamers and highlight how more research is needed on young adult gamers with experiences of anxiety. In regards to the interviews, I attempted to use my knowledge of video games to foster a non-judgmental environment so that participants could feel safe and comfortable sharing about their experiences of gaming. At the same time, through reflective journalling and supervisory discussions, I remained mindful of my own assumptions and biases to ensure participants' perspectives remained at the forefront of the analytical process.

Process of Reflexive Thematic Analysis

Emotional response to interviews and transcripts

I experienced a range of emotions conducting the interviews and listening back to them when transcribing. I feel these shaped different aspects of my analytical approach, including how I emphasize the need for curiosity and compassion when working with gamers with anxiety. I noticed that for most participants, their responses became more open as the interview would go on particularly when discussing difficulties related to gaming. While this could be attributed to simply feeling more at ease and less nervous as time went on, I wondered if a deeper process was at play. On reflection I am curious if participants had initially expected me to be 'anti-gaming' or 'pathologizing' of their gaming, particularly as they had signed up for a gaming and anxiety study. During the short debriefs after interviews several participants shared how they felt quite positive as they felt the interview questions had been non-judgmental and curious. Moreover, several participants shared that they are not often asked about gaming from others despite it being quite an important aspect of their life. This has left me curious about how much this resonates with the themes around gaming stigma and shame (Galanis & King, 2025), and what kinds of responses

they may have given if I had adopted more diagnostic or problem-focused language. I was glad to see that the intention and thought that went into shaping interview questions to feel non-judgmental appeared to have helped facilitate open and expansive responses.

Figure 1: Interview Schedule

Introduction:

Thank you very much for agreeing to be part of this study about the relationship between video gaming and thoughts and feelings you experience associated with it. The interview should last between 45 minutes and 1 hour.

Please remember you can end the interview at any time, and you don't have to answer anything you don't want to. At the end I will carry out a short check in about how you are feeling and provide signposted resources.

If we lose connection at any point, please log back in. If any significant technical issues arise we will be in contact via email.

Does that sound okay to you? Do you have any questions for me before we begin?

Introduction- broader questions

1. Can you tell me how much time you typically spend gaming in a given week?
2. Can you tell me about what kinds of gaming you take part in and what aspects of these draw you into this?
3. What would you say are the main reasons you game, and can you tell me a bit more about that?

Time-specific questions:

4. Could you describe any kinds of triggers or situations that may influence you wanting to game?
5. In the build up to a gaming session... what kind of thoughts and feelings do you usually experience? (ie. in the hour before)
6. During a gaming session... what thoughts and feelings do you have while you are gaming?
7. Following the gaming session (in the hour after) what thoughts and feelings are you experiencing?

Conclusion- broader questions:

8. How would you say your gaming impacts your daily life and wellbeing?
9. Are there ways in which gaming is helpful for you?
10. Are there ways in which gaming is unhelpful for you?
11. Have you ever had any worries about your gaming?
12. What do you think others like friends or family think about your gaming and how does this make you feel?
13. What would you like others to know about the role gaming plays in your life?
14. Is there anything else you would like to add before we end the interview?

Coding across data set

I initially felt pulled to use the interview questions as make-shift titles for initial codes. I did this as the breadth and depth of responses felt somewhat overwhelming at the start, and having tentative titles helped me feel I had some form of organising framework. While this was helpful in the very early stages I quickly realised as the process went on that participant responses and associated codes would not 'fit' into these discrete categories. Instead, I was able to iteratively name, define, and refine different initial titles and eventual themes. For example, the codes underpinning the theme 'Gaming in Childhood: "A Way to Survive"' spanned several questions, particularly amongst the final seven prompts (See Figure 2). I found this very intriguing as none of my questions specifically asked about childhood, and yet this emerged naturally and inductively. Moreover, some participants used the open-ended nature of Question 14 to specifically underscore how important childhood experiences were to their relationship to gaming. I was not necessarily surprised by the mention of childhood as I have had my own personal experiences with gaming in childhood and I have worked extensively with children and young people who game. I was surprised however by the significance attributed to childhood influences amongst many participants, and how they felt compelled to bring it up relatively unprompted. I was also left with a personal reflection of 'of course childhood must be important, how did I not think to ask about this directly'. Together, this helped increase my confidence that childhood influences were important and meaningful to the research question and should be considered for a theme.

Coding process and reflexive journal

Below are excerpts from my reflexive journal which highlight a range of decisions, dilemmas, and emotions throughout the reflexive thematic analysis;

It feels like such a relief to get all the transcripts ready and get 'stuck into' into the coding. I've already spent an intensive period of time coding and feel very immersed. I've made the decision to start by semantically coding the data

with the hope of both becoming even more familiar with it and capturing what was conveyed on a 'surface level' before delving into more latent interpretations. I have however ensured to make notes of my thoughts and ideas of potential latent codes when and where they feel particularly salient to come back to later. For example, something that feels very important already, though not exactly spoken aloud, is a shared sense of feeling conflicted about one's gaming and a tension to not let it get out of control like it has 'in the past'.

Theme 1 was eventually constructed out of both semantic and latent codes related to this dilemma that participants shared about trying to get the balance right with their gaming. I too was trying to get the balance right in my approach to coding and valued RTA's flexibility. Whether I was aiming to code semantically or latently, I felt confident to take a dynamic and non-linear approach toward this process as is encouraged by Braun and Clarke (2022). I felt there was a high level of nuance across and within the dataset and feel that this approach helped me capture participants' often complex relationship to gaming more authentically.

While still semantically coding I encountered a dilemma of whether I was being too descriptive;

I experienced a dilemma about coding. I had been intensively coding and found myself wondering if I am just 'describing' at times rather than being interpretative enough. This gave me cause to pause, reflect, and research how to go about resolving this dilemma.

Several resources helped me reframe my approach including Braun and Clarke's (2022) Practical Guide to Thematic Analysis and Byrne's (2022) paper on a worked example of RTA. Both of these resources emphasize the researcher's active role in making meaning out of the data rather than purely describing or paraphrasing it. This gave me confidence to trust in the worth of my interpretations and feel less pressure to 'get things perfectly right'. Another aspect of the coding

process I reflected on was my own emotional responses to completing different stages. In fact I was taken aback by the level of emotion I felt as I neared the culmination of the coding process;

"As I approach the end of the coding phase and move to constructing themes I feel a sense of sadness and relief. It has been a long process in so many ways to reach this point. In fact, I set out on my psychology journey in 2012. So this feels like the culmination of all my studies… so I hope that I can do a good job"

Reaching the 'end' of the coding phase felt like an important milestone that represented both a step closer to finishing the project and a step closer to finishing the DClinPsy. This brought up strong feelings about my journey in reaching this point and the many ups and downs, opportunities and challenges, good times and difficult times. There were times in this project where reaching the coding phase felt very distant and out of reach. Being able to have transcripts and codes sitting on the screen in front of me felt like a significant achievement but also a reminder that I would soon be ending a significant chapter of my life. I have reflected on what I meant when I wrote 'I hope that I can do a good job' with these codes. For me, 'doing a good job' on this project has meant doing my best to authentically and meaningfully tell the overall 'story' of the data and use this to increase curiosity about how anxiety and gaming may be related.

Deciding what to include

A key challenge I faced was reconciling that I would not be able to meaningfully present everything that was shared by participants in the final analysis. This is not expected, or advised, in reflexive thematic analysis as too many themes can lead to incoherent or less rich interpretations (Braun & Clarke, 2022). Even so, I felt a dilemma that by choosing certain stories to 'tell' I risked leaving other stories 'untold'. To address this dilemma, I tried to remain anchored to the research question that, while open-ended, specifically focused on how gaming relates to anxiety. This provided clarity in the later stages of theme development as I felt confident that the final four

themes work together to tell the overall story of the dataset in a way that addresses the research question (Braun & Clarke, 2022). Up until this point however I faced an ongoing internal negotiation about which potential themes to include and not include. This was particularly difficult when selecting quotes as I would have liked to include more insights about influences such as game types, experiences related to gender, player toxicity, the developing brain, parenthood, and game design elements.

Regarding the main themes, I initially included multiple subthemes and even super subthemes to best capture patterns in the data (See Appendix 5 'Early iteration of thematic map'). For example, for Theme 4 I mapped out how stigma and negative narratives towards gaming led to feeling 'misunderstood and misjudged', 'family conflict', and 'internalised shame'. While each of these felt very relevant and worthy of in depth interpretations, I also recognised that they shared enough overlap that I could try and convey their meaning under one main theme title. This was a similar process for other themes including Theme 3, where I initially wanted to emphasize 'adolescence' and 'navigating adult responsibilities' to better capture the trajectory of gaming over the lifespan. However once again, I took the decision to try and integrate these into one main theme and try and use effective quotes that highlight these different factors. Participant 6's quote that said gaming was 'a way to survive' felt especially linked to coping with anxiety and distress and felt like a fitting addition to the overall theme's title. I also feel that it added an emotional weight that underscores the complex role that gaming can play, and how it can oscillate between adaptive and maladaptive coping in different contexts. However, I made a different decision for Theme 1 and decided to keep the subthemes but take out the super-subthemes. This felt particularly relevant in this instance as participants emphasized the duality of gaming and its double-edged capacity as a coping mechanism. Moreover, most participants shared how gaming could indeed be helpful at times for emotion regulation and coping and I felt it was important to include this to avoid only including problem-based gaming perspectives.

Overall, I was left with a sense that many papers could have been written from this dataset given the richness and diversity of responses. I do hope that future research is able to explore different aspects of gamers' lived experience, and use this to inform how best to provide psychological support and care.

Conclusion

Overall, this project was both challenging, rewarding, and though provoking. Broadly, this experience has increased my passion for researching how technology relates to mental health. Specifically, I would like to continue exploring how qualitative research can be used to complement the high amount of quantitative studies on this topic particularly in more under researched areas and populations. While much more research is needed, this project highlights how gaming can have multi-layered functions and impacts amongst gamers with different levels of presentations and impairments. It also highlights how the current research landscape related to gaming is evolving, debated, and limited in key areas (i.e., non-clinical populations). Looking forward, the use of diverse research approaches, interdisciplinary collaboration, and the perspectives of gamers themselves will be important tools in better understanding how gaming relates to mental health.

References

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5 ed.). https://doi.org/https://doi.org/10.1176/appi.books.9780890425596

Archer, C., Turner, K., Kessler, D., Mars, B., & Wiles, N. (2022). Trends in the recording of anxiety in UK primary care: a multi-method approach. Social Psychiatry and Psychiatric Epidemiology, 57(2), 375-386.

Bargeron, A. H., & Hormes, J. M. (2017). Psychosocial correlates of internet gaming disorder: Psychopathology, life satisfaction, and impulsivity. Computers in Human Behavior, 68, 388-394.

Braun, V., & Clarke, V. (2022). Thematic analysis : a practical guide / Virginia Braun and Victoria Clarke. SAGE Publications Ltd.

Engelstätter, B., & Ward, M. R. (2022). Video games become more mainstream. ENTERTAINMENT COMPUTING, 42, 100494.

Galanis, C. R., & King, D. L. (2025). Stigma and other public perceptions of recreational gaming and gaming disorder: A large-scale qualitative analysis. COMPUTERS IN HUMAN BEHAVIOR REPORTS, 17, 100581.

Gioia, F., Colella, G. M., & Boursier, V. (2022). Evidence on Problematic Online Gaming and Social Anxiety over the Past Ten Years: a Systematic Literature Review. Current Addiction Reports, 9(1), 32-47. https://doi.org/https://doi.org/10.1007/s40429-021-00406-3

Kavanagh, M., Brett, C., & Brignell, C. (2023). What is the reported relationship between self-esteem and gaming disorder? A systematic review and meta-analysis. Computers in Human Behavior, 145, 107776.

Kim, H. S., Son, G., Roh, E.-B., Ahn, W.-Y., Kim, J., Shin, S.-H., Chey, J., & Choi, K.-H. (2022). Prevalence of gaming disorder: A meta-analysis. Addictive Behaviors, 126, 107183. https://doi.org/https://doi.org/10.1016/j.addbeh.2021.107183

King, D. L., Chamberlain, S. R., Carragher, N., Billieux, J., Stein, D., Mueller, K., Potenza, M. N., Rumpf, H. J., Saunders, J., Starcevic, V., Demetrovics, Z., Brand, M., Lee, H. K., Spada, M., Lindenberg, K., Wu, A. M. S., Lemenager, T., Pallesen, S., Achab, S.,…Delfabbro, P. H. (2020). Screening and assessment tools for gaming disorder: A comprehensive systematic review. Clinical Psychology Review, 77, 101831. https://doi.org/https://doi.org/10.1016/j.cpr.2020.101831

King, D. L., Delfabbro, P. H., Perales, J. C., Deleuze, J., Király, O., Krossbakken, E., & Billieux, J. (2019). Maladaptive player-game relationships in problematic gaming and gaming disorder: A systematic review. Clinical Psychology Review, 73, 101777.

Király, O., Koncz, P., Griffiths, M. D., & Demetrovics, Z. (2023). Gaming disorder: A summary of its characteristics and aetiology. Comprehensive Psychiatry, 122, 152376.

Koncz, P., Demetrovics, Z., Takacs, Z. K., Griffiths, M. D., Nagy, T., & Király, O. (2023). The emerging evidence on the association between symptoms of ADHD and gaming disorder: A systematic review and meta-analysis. Clinical Psychology Review, 106, 102343.

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behaviour research and therapy, 33(3), 335-343.

Männikkö, N., Ruotsalainen, H., Miettunen, J., Pontes, H. M., & Kääriäinen, M. (2020). Problematic gaming behaviour and health-related outcomes: A systematic review and meta-analysis. Journal of Health Psychology, 25(1), 67-81.

Mills, D. J., Marchica, L., Keough, M. T., & Derevensky, J. L. (2020). Exploring differences in substance use among emerging adults at-risk for problem gambling, and/or problem video gaming. INTERNATIONAL GAMBLING STUDIES, 20(3), 539-555.

Pontes, H. M., & Griffiths, M. D. (2015). Measuring DSM-5 internet gaming disorder: Development and validation of a short psychometric scale. Computers in Human Behavior, 45, 137-143.

Rehbein, F., King, D. L., Staudt, A., Hayer, T., & Rumpf, H.-J. (2021). Contribution of game genre and structural game characteristics to the risk of problem gaming and gaming disorder: A systematic review. Current Addiction Reports, 8(2), 263-281.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. Archives of internal medicine, 166(10), 1092-1097.

Stevens, M. W., Dorstyn, D., Delfabbro, P. H., & King, D. L. (2021). Global prevalence of gaming disorder: A systematic review and meta-analysis. Australian & New Zealand Journal of Psychiatry, 55(6), 553-568.

Szász-Janocha, C., Magann, M., Gold, H., Lindenberg, K., Delfabbro, P., & King, D. L. (2023). Problem gaming-related harm experienced by partners and parents of individuals with gaming problems and their help-seeking experiences. Journal of behavioral addictions, 12(1), 137-147.

World Health Organization. (2022). ICD-11: International classification of diseases (11th rev.). W. H. Organization. https://icd.who.int/

APPENDICES

Appendix 1: Ethical Approval

DIVISION OF PSYCHOLOGY AND LANGUAGE SCIENCES

Ethics Application Form for Non-Invasive Research on Healthy Adults

SECTION A APPLICATION DETAILS

A1 Project details

Project Title: Investigation of the relationship between technology, the design of digital environments and the experience of anxiety and shame.

Date of submission: 15 Apr. 24

Proposed start date: 15th April 2024

Proposed end date: 14th April 2029
(this can be up to 5 years from start date):

A2 Principal researcher

(Note: A student – undergraduate, postgraduate or research postgraduate – cannot be the principal researcher for ethics purposes).

Full name: Martin Dechant

Position held: Lecturer of Digital Mental Health

Research Department: Clinical, Education & Health Psychology

The principal researcher must read and sign (electronic signature or scanned pdf with signature are acceptable) the following declaration. Please tick the box next to each of the statements below to acknowledge you have read them and provided all required information.

▪ I will ensure that changes in approved research protocols are reported promptly and are not initiated without approval by the Departmental Ethics Committee, except when necessary to eliminate apparent immediate hazards to the participant.	✓
▪ I have completed a risk assessment for this programme of research and hereby confirm that the risk assessment document will be discussed with any researcher/student involved in this programme of research (currently or in the future). I will ensure that all researchers/students sign the risk assessment form following this discussion. **Risk assessment forms for projects can be downloaded from the Ethics section of the PaLS Intranet.**	✓
▪ I have completed the Information Governance training provided by ISG	✓
▪ I have obtained approval from the UCL Data Protection Officer stating that this research project is compliant with the General Data Protection Regulation. **My Data Protection Registration Number is: Z6364106/2023/03/159** You can find a data protection registration form at: http://www.ucl.ac.uk/legal-services/research ***Note***: your data protection number could cover a whole programme of research. It is not always necessary to request a data protection number for each individual project.	✓
▪ I have included examples of the Information Sheet and Consent Form for the proposed research. It will be made clear to the participants that they can withdraw from the study at any time, without giving a reason.	✓
▪ I will ensure that all adverse or unforeseen problems arising from the research project are reported in a timely fashion to the UCL Research Ethics Committee.	✓

▪ I will undertake to provide notification when the study is complete and if it fails to start or is abandoned.	✓
▪ I have met with and advised students on the ethical aspects of this project/programme of research.	✓
▪ I am satisfied that the proposed research complies with current professional, departmental and university guidelines.	✓

Signature: [redacted] **Date:** **15/04/2024**

A3 Contact details

Principal Researcher

Full name: Martin Dechant
Position held: Lecturer Digital Mental Health
Research Department: Computer Science
Email : m.dechant@ucl.ac.uk Telephone: [redacted]

Additional applicant 1

Full name: **PhD and MSc students under my supervision, and PDRAs**
Position held: *(undergraduate/taught master's/MRes/research student/postdoctoral/staff)*:
Research Department: CEHP, **UCLIC, Computer Science**
Email : Telephone:

Additional applicant 2

Full name:
Position held:
Research Department:
Email : Telephone:

(Add further details on a separate sheet if there are more applicants to be covered by this form)

A4 Approval from the Departmental Ethics Committee

(Approval cannot be given by the principal researcher of this project – if necessary, the application must be sent to an Ethics Officer from a different Research Department, or to the College Ethics Committee, for approval)

Declaration by the Research Department Ethics Chair:

I have reviewed this project and I approve it. X

The project is registered with the UCL Data Protection Officer, and a formal signed risk assessment form has been completed.

Allocated Departmental Project ID Number for the approved application:

CEHP/2024/597

Name of the Research Department Ethics Chair (type in):
Jean-Baptiste Pingault

Date: 15/04/2024

Amending an Approved Application

Should you wish to make an amendment to an approved study, you will need to submit an 'amendment request' for the consideration of the Chair of the UCL Research Ethics Committee. Applications can only be amended **after** ethical approval has been granted.

You will need to apply for an amendment approval if you wish to:

1. Add a new participant group;
2. Add a new research method;
3. Ask for additional data from your existing participants;
4. Remove a group of participants or a research method from the project, and have not yet commenced that part of the project;
5. Apply for an extension to your current ethical approval.

If you need to apply for an amendment approval, please complete the Amendment Approval Request Form on the next page.

When completing the form, please ensure you do the following:

- Clearly explain what the amendment you wish to make is, and the justification for making the change.
- Insert details of any ethical issues raised by the proposed amendments.
- Include all relevant information regarding the change so that the Chair can make an informed decision, and submit a copy of the sections of your application that have changed with all changes highlighted/underlined for clarity.
- You do not need to submit your original application in full again. However, if the changes you wish to make alters several sections of your application form, you are advised to submit this.

Please email a signed electronic copy to the REC Administrator: ethics@ucl.ac.uk

Amendment requests are generally considered within 5-7 days of submission.

Amendment Approval Request Form

1	**Project ID Number:** **CEHP/2024/597**	**Name and Address of Principal Investigator:** Martin Dechant
2	**Project Title:** Investigation of the relationship between technology, the design of digital environments and the experience of anxiety and shame	
3	**Type of Amendment/s (tick as appropriate)** Research procedure/protocol (including research instruments) ☒ Participant group ☒ Sponsorship/collaborators ☐ Extension to approval needed (extensions are given for one year) ☐ Information Sheet/s ☒ Consent form/s ☒ Other recruitment documents ☐ Principal researcher/medical supervisor* ☐ Other ☐ *Additions to the research team other than the principal researcher, student supervisor and medical supervisor do not need to be submitted as amendments but a complete list should be available upon request *	
4	**Justification** (give the reasons why the amendment/s are needed) This amendment is a natural extension of the original study, which focuses on the relationship between **digital environments, anxiety, and shame**. We are expanding the research to **better understand gaming behaviours** among individuals with **mild indications of problematic gaming**. This will help us explore how gaming influences emotions such as **anxiety and shame**, while ensuring the study remains **non-clinical and low risk**. By including this additional focus, we aim to gain a more **complete picture** of gaming-related emotions, building on previous research into **shame and anxiety in digital interactions**. We are also refining our methods to ensure ethical best practices, including an updated **screening process, consent form, and debrief procedure**.	
5	**Details of Amendments** (provide full details of each amendment requested, state where the changes have been made and attach all amended and new documentation) **Summary of the changes required for the new study:** - **Expanded Screening Process:** We will screen for mild anxiety GAD-7 (GAD-& score ≤ 9). We will also screen if participants consider themselves as "occasional gamers" or "regular gamers". (Occasional gamers= 0 to 2 days a week), (regular gamers= 3 to 7 days a week).	

- **Updated Information Sheet and Consent Form:** Includes clearer explanations of the study's purpose, participant rights, and the voluntary nature of participation.

- **Refined Interview Questions:** To explore gaming motivations, thoughts about gaming, emotional experiences, and social perceptions of gaming.

- **Updated Debrief Form:** Provides clear information on mental health resources available to participants.

Title of the Additional New Study: Exploring the experience and impacts of video gaming through the perspective of gamers with mild anxiety.

Goals: This study aims to provide insights into the emotions, perspectives, and experiences of gamers who experience mild anxiety and how this may relate to video gaming.

Inclusion Criteria:

- **Aged between 18 and 35 years of age** and **able to provide informed written consent** on the Qualtrics form.
- Participants must **live in the United Kingdom**
- Participants **play video games regularly (3-7 days a week)**
- Participants must **experience mild levels of anxiety** measured by the **GAD-7 (scoring in the range of 5-9).**
- Participants are **not currently engaging in a therapy/psychological treatment for anxiety or problematic gaming, experiencing auditory or visual hallucinations, or at risk of self-harm or suicide.**
-

Exclusion Criteria:

- Participants **outside of age parameters** (below 18 or above 35) and/or are not able to provide informed written consent
- Participants **live outside of the United Kingdom** and have no access to NHS mental health services
- Participants **do not meet the scores on GAD-7: i) score of 4 or below OR ii) score of 10 and above.**
- Participants do not play video games regularly (occasional gamers=0 to 2 days a week).
- Participants **currently engaging** in a therapy/psychological treatment for anxiety or problematic gaming, experiencing auditory or visual hallucinations, or at risk of self-harm or suicide.

Recruitment:
Approaches to recruitment are generally based on convenience sampling and/or purposive sampling. The experiment contains procedures which require an engagement with the researcher (semi-structured interview). Therefore, we use the **UCL Psychology Subject Pool (SONA**) as well as a **snowball recruitment approach (reaching out to gaming societies at university)** to find suitable participants.

Further, we may use **physical posters as an additional advertisement (See Attachment)** if our online approaches fail to recruit enough participants.

Procedure:
The study consists of two steps:

- **Screening for frequency of gaming behaviours and mild anxiety.**
- A Qualtrics form to support screening will be created where participants first read through the information sheet, complete the consent form, and provide necessary demographic information (name, age, gender, email address, and if they reside in the UK).
- The next step is to exclude respondents who are **not** 'regular gamers' (ie. those who select the option 'occasional gamer: 0-2 days a week'). Respondents who select 'occasional gamer' will be presented with a screen on the Qualtrics that ends the survey and thanks them for their interest but informs them that their answer falls outside of the population we are hoping to include for the study. The second goal of this step is to **filter out** participants who respond as moderately to severely anxious (GAD-7 score ≥ 10) to ensure their safety. Participants who will be excluded, who respond as 'occasional gamers' and/or score either **above or below** inclusion criteria scores on the GAD-7, will be sent an email that i) informs them their responses do not fall within the specific range and population being studied in this project and ii) provides signposting information to third-party services (NHS, Samaritan.org).
- **Semi-structured interview.** We will interview participants who meet the inclusion criteria (see above) online (~1 hour). We will use the following interview schedule (see below).
- **Debrief:** We will debrief participants and signpost them to third-party services (NHS, Samaritan.org) to ensure they are aware of support services in case they need them.

Interview Schedule:

Introduction:

Thank you very much for agreeing to be part of this study about the relationship between video gaming and thoughts and feelings you experience associated with it. The interview should last between 45 minutes and 1 hour.

Please remember you can end the interview at any time, and you don't have to answer anything you don't want to. At the end I will carry out a short check in about how you are feeling and provide signposted resources.

If we lose connection at any point, please log back in. If any significant technical issues arise we will be in contact via email.

Does that sound okay to you? Do you have any questions for me before we begin?

Introduction- broader questions

2. Can you tell me how much time you typically spend gaming in a given week?
3. Can you tell me about what kinds of gaming you take part in and what aspects of these draw you into this?
4. What would you say are the main reasons you game, and can you tell me a bit more about that?

Time-specific questions:

5. Could you describe any kinds of triggers or situations that may influence you wanting to game?

	6. In the build up to a gaming session... what kind of thoughts and feelings do you usually experience? (ie. in the hour before) 7. During a gaming session... what thoughts and feelings do you have while you are gaming? 8. Following the gaming session (in the hour after) what thoughts and feelings are you experiencing? **Conclusion- broader questions:** 9. How would you say your gaming impacts your daily life and wellbeing? 10. Are there ways in which gaming is helpful for you? 11. Are there ways in which gaming is unhelpful for you? 12. Have you ever had any worries about your gaming? 13. What do you think others like friends or family think about your gaming and how does this make you feel? 14. What would you like others to know about the role gaming plays in your life? 15. Is there anything else you would like to add before we end the interview?
6	**Ethical Considerations** (insert details of any ethical issues raised by the proposed amendment/s) The amendment to include individuals with mild indications of problematic gaming introduces ethical considerations that must be carefully managed to ensure participant well-being while maintaining a non-clinical focus. 1. **Risk of Psychological Distress** o **Concern:** While the study excludes individuals with moderate/ severe anxiety, discussing gaming habits in relation to anxiety may still cause discomfort or lead to increased self-awareness that some participants may find distressing. o **Mitigation:** Our **screening process** ensures that participants included in the interview component of the study only exhibit **mild levels of anxiety (score of 5-9 on GAD-7).** Those who score above the threshold for moderate and severe anxiety (GAD-7 score ≥ 10) will be excluded to **prevent potential harm and emailed a letter with NHS support resources**. While we ask for frequency of gaming (measured in days per week) to establish 'regular gamers' or not, we are **not** asking about specific problematic gaming behaviours (ie. through measures related to Internet Gaming Disorder, Gaming Disorder). Additionally, the study will provide a **clear and supportive debrief** that signposts participants to **mental health resources** should they experience distress to all participants to ensure they are aware about support resources. 2. **Avoiding Stigmatization** o **Concern:** The study must ensure that participants do not feel judged or labelled as having a "problem" simply because they engage in gaming while experiencing anxiety. Framing gaming in a negative or clinical light could contribute to stigma. o **Mitigation:** The research materials, including the **consent form, interview questions, and study description,** will be carefully worded to **avoid pathologizing gaming behaviours**. Instead, the study will take a **neutral and exploratory approach**, emphasizing that gaming can be a **complex and varied experience** rather than inherently problematic. 3. **Ethical Recruitment and Informed Consent**

	○ **Concern:** Participants should fully understand the nature of the study and should not feel coerced into participating due to incentives (e.g., the £10 voucher). ○ **Mitigation:** The **recruitment process** will ensure that participation is **entirely voluntary**, and the consent form will clearly outline the study's purpose, risks, and the right to withdraw at any time. Additionally, participants will be given **ample opportunity to ask questions** before consenting. 4. **Balancing Sensitivity in Data Collection** ○ **Concern:** Semi-structured interviews may lead participants to disclose personal or sensitive information about their gaming habits and emotional experiences. Without proper safeguards, this could lead to unintended psychological discomfort. ○ **Mitigation:** The interview will be **structured in a way that allows participants to engage at their comfort level**, ensuring they are not pressured to disclose anything they find distressing. The researcher will **monitor participant well-being during the interview** and provide **signposting to mental health resources** in case participants express distress.
7	**Other Information** (provide any other information which you believe should be taken into account during ethical review of the proposed changes) /

Declaration (to be signed by the Principal Researcher)

- I confirm that the information in this form is accurate to the best of my knowledge and I take full responsibility for it.
- I consider that it would be reasonable for the proposed amendments to be implemented.
- For student projects, I confirm that my supervisor has approved my proposed modifications.

Signature: [redacted]

Date: 4/03/2025

FOR OFFICE USE ONLY:

Amendments to the proposed protocol have been approved by the Research Ethics Committee.

Signature of the REC Chair: [redacted]

Date: 4/03/2025

Appendix 2: Information Sheet

Participant
Information Sheet for Adults aged above 18 years
UCL Research Ethics Committee Approval ID Number: CEHP/2024/597

YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of Study: Exploring the experience and impacts of video gaming through the perspective of gamers with mild anxiety.

Department: CEHP, UCLIC

Primary Researcher(s):

John Anderson **Email:** john.anderson.16@ucl.ac.uk

Principal Researchers:

Martin Dechant **Email:** m.dechant@ucl.ac.uk
Talya Greene **Email:** talya.greene@ucl.ac.uk

Name of the UCL Data Protection Officer:

Alexandra Potts **Email:** data-protection@ucl.ac.uk

1. Welcome

Thank you so much for your interest in our study.

My name is John and I am currently doing my Doctorate of Clinical Psychology at University College London.

You are being invited to take part in a research study that will be exploring the thoughts and feelings associated with playing video games and how this may relate to mild levels of anxiety.

Before you decide to participate, it is important for you to understand why the research is being done and what it will involve. Please read the following information very carefully and discuss it with others if you wish. Please get in contact if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

2. What is the project's purpose?

The aim of this project is to better understand how gaming and mild levels of anxiety may be linked with one another by exploring thoughts and feelings related to people's experiences of gaming.

Gaming is a hugely popular activity for billions of people around the world and for many it is a fun and harmless experience. However, for some people gaming can also have negative impacts including thoughts and feelings related to anxiety. Therefore, this study hopes to gain the perspectives of gamers who experience mild levels of anxiety to help us better understand the different thoughts and emotions experienced in the context of their gaming.

If you would like to take part we will invite you to complete a questionnaire and be interviewed by a member of our team. Ultimately the information we collect can help inform what kind of resources would be most helpful for those who would like support with anxiety and gaming.

3. What is the criteria to be a participant in this study?

- In order to participate you will need to be between 18 and 35 years of age and able to provide informed written consent on the Qualtrics form.
- You consider yourself a 'regular gamer' (which for this study means you play video games 3 to 7 days a week)
- You indicate that you are experiencing **mild** levels of anxiety
- You are **not** currently engaging in a therapy/psychological treatment for anxiety or problematic gaming, experiencing auditory or visual hallucinations, or at risk of self-harm or suicide.

4. Do I have to take part?

It is up to you whether to take part or not. If you do decide to take part, you will be given this information sheet to keep and asked to complete a consent form. You can withdraw at any time without giving a reason and without it affecting any benefits that you are entitled to. If you decide to withdraw while the study is ongoing, you will be asked what you wish to happen to the data you have provided up to that point. Please note that as soon as the data collection is completed, we will anonymise your data and it won't be possible any longer to delete your data.

5. What will happen to me if I take part?

1) We will first ask you to complete an online screening form to check if you are eligible for the study based on the specific criteria we are hoping to focus on. We will first ask you to answer if you are a 'regular gamer' or 'occasional gamer' based on the amount of days a week you might typically play video games. If you consider yourself a 'regular gamer' you will then be asked to complete a short questionnaire called the Generalised Anxiety Disorder 7 Scale (GAD-7).

If you indicate that you are not a 'regular gamer' and/ or your scores on the GAD-7 do not fall within the mild range we will unfortunately not be able to invite you for an interview. Instead we will email you with signposting information to support resources.

2) If you indicated that you are a 'regular gamer' and your scores fall within the 'mild' range of the GAD-7 we will invite you via email to take part in a remote interview.

In this interview we will ask you a range of questions about the thoughts and feelings you experience before, during, and after gaming. We will also ask you questions about what you find helpful and unhelpful about your gaming and different ways gaming has an impact on your life. We expect interviews to last around 30 minutes to 1 hour. As we will be asking about your thoughts and emotional wellbeing this may induce negative emotions and potential stress. If you feel any discomfort during the experiment you can pause and/or stop the interview at any time.

If you have any questions, please do not hesitate to get in touch with the members of the research team outlined on the first page of this document.

6. Will I be recorded and how will the recorded media be used?

Interviews will be conducted on Microsoft Teams. Interviews will be recorded and then transcribed to analyse the findings.

Any data records (e.g., paper records, digital responses, audio/video recording of the interview, videos of the interaction) will be collected and stored on encrypted, password-protected devices for the duration of the study in accordance with the Data Protection Act 1998 and GDPR. Audio/video recordings of interviews will only be used for transcription and analysis purposes, safely stored on a password-protected device, not linked to any personal data, and recordings will be destroyed after the data has been transcribed. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings. No one but the Principal Investigator and the Researcher on this project will be allowed access to the original recordings.

7. What are the possible disadvantages and risks of taking part?

As our study is focused on thoughts and emotions we will ask participants to answer personal questions and questionnaires about topics related to feelings of anxiety. These questions require you to reflect on yourself and potential uncomfortable thoughts. If at any time you feel uncomfortable and wish to stop taking part in the study for this or any other reason, please tell the researcher who will immediately end the experiment. All prior recorded data will be destroyed. Furthermore, we will provide signposting resources for how you could access mental health support (ie. https://www.nhs.uk/nhs-services/mental-health-services/).

The use of an online platform like Microsoft Teams is not known to pose any risks to the individuals taking part in the interview. If at any point you are disconnected or require technical help, please don't worry and we will do our best to get you back into the session as soon as possible. If you have any questions or concerns, please ask us at any point before, during or after your participation. Moreover, if you are not comfortable discussing any issues/questions, do not wish to take part in the study, or wish to withdraw after beginning the study, you can tell me at any time.

8. What are the possible benefits of taking part?

This is an exciting opportunity for you to share your lived experience and provide invaluable insight into how gaming-related thoughts and feelings may relate to one another and potential feelings of anxiety. Very little research has come from gamers themselves so this would support a more bottom-up approach to our understanding. Ultimately we hope that your insights will help inform what kinds of support can best help those who may be struggling with gaming-related anxiety symptoms.

Participants who are invited to the interview stage of the study will receive a £10 Amazon Voucher for their time upon conclusion of the interview.

9. What if something goes wrong?

If you have questions or wish to make a complaint regarding your treatment by the researcher who is conducting this study, please contact Martin Dechant (m.dechant@ucl.ac.uk).

Should you feel that your complaint has not been handled satisfactorily please contact the Chair of the UCL Research Ethics Committee (ethics@ucl.ac.uk).

10. Will my taking part in this project be kept confidential?

All information, which is collected about you during the course of the research will be kept strictly confidential. People from regulatory authorities may look at our records to check that the study is being carried out correctly. Your name will not be disclosed. You will not be able to be identified in any ensuing reports or publications.

11. Limits to confidentiality

Confidentiality will be respected subject to legal constraints and professional guidelines. If concerns of risk for your safety and/or others are raised we may need to breach confidentiality to provide the appropriate support. If this was the case, we would inform you of any decisions that may limit your confidentiality.

12. Use of Deception

There will be no use of deception in this interview study.

13. What will happen to the results of the research project?

We aim to publish results of the study in scientific journals or present our findings at scientific conferences. If you would like a summary of the results on completion or details of any publications and presentations, please contact Dr. Martin Dechant m.dechant@ucl.ac.uk.

All the information that we collect about you during the course of the research will be kept strictly confidential. Only researchers working on this project will have access to your data. You will not be able to be identified in any ensuing reports or publications, and this includes personal data and quotes from interviews. Audio or video recordings will be transcribed and anonymised as quickly as possible. During the active project, data is stored safely on a password protected device to avoid any risk of data breach, and after transcription, the recordings will be deleted.

14. Data Protection Privacy Notice

The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk

This 'local' privacy notice sets out the information that applies to this particular study. Further information on how UCL uses participant information can be found in our 'general' privacy notice: https://www.ucl.ac.uk/legal-services/privacy

The information that is required to be provided to participants under data protection legislation (GDPR and DPA 2018) is provided across both the 'local' and 'general' privacy notices.

The lawful basis that will be used to process your personal data is: 'Public task' for personal data.

The lawful basis used to process special category personal data will be for scientific and historical research or statistical purposes.

- Age
- Gender

Your personal data will be processed so long as it is required for the research project. All data will be anonymised and safely stored in password-protected devices.

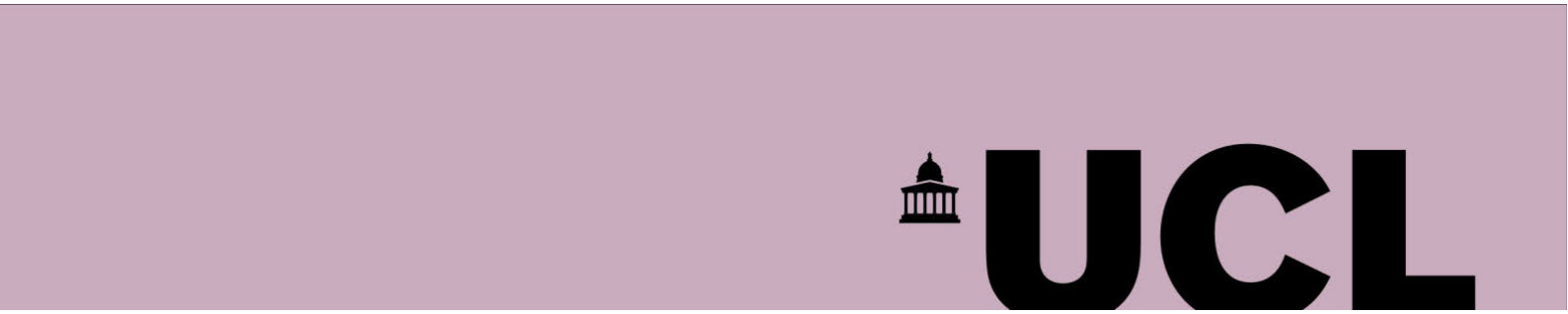
If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk. If you remain unsatisfied, you may wish to contact the Information Commissioner's Office (ICO). Contact details, and details of data subject rights, are available on the ICO website at: https://ico.org.uk/for-organisations/data-protection-reform/overview-of-the-gdpr/individuals-rights/

15. Contact for further information

If you have any further questions, please don't hesitate to contact me, John Anderson (john.anderon.16@ucl.ac.uk), or the main principal investigator Martin Dechant (m.dechant@ucl.ac.uk).

Thank you for reading this information sheet and for considering taking part in this research study.

Appendix 3.1: Consent Form



CONSENT FORM FOR ADULTS AGED ABOVE 18 YEARS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Title of Study: Exploring the experience and impacts of video gaming through the perspective of gamers with mild anxiety.

Department: CEHP & UCLIC

Name the Researcher(s): John Anderson **Email:** john.anderson.16@ucl.ac.uk

Principal Researchers:

Martin Dechant **Email:** m.dechant@ucl.ac.uk
Talya Greene **Email:** talya.greene@ucl.ac.uk

Name of the UCL Data Protection Officer:

Alexandra Potts **Email:** data-protection@ucl.ac.uk

This study has been approved by the UCLIC Research Ethics Committee:
CEHP/2024/597

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

I confirm that I understand that by selecting 'Yes' for each box below I am consenting to this element of the study.

I understand that it will be assumed that an answer of 'no' to boxes means that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element that I may be deemed ineligible for the study.

		Yes or No
1.	I confirm that I have read and understood the Information Sheet for the above study. I have had an opportunity to consider the information and what will be expected of me. I also have the contact information necessary to ask questions to the research team before I take part.	
2.	I consent to participate in the study. I understand that my personal information, **if applicable**, (name, age, email address) will be used to contact me, send me any materials, or used only for the purpose explained to me in the Information Sheet.	
3.	I understand that my data gathered in this study will be safely stored in password-protected devices. It will not be possible to identify me in any report and/or publications.	
4.	I consent to my interview being audio/video recorded, **if applicable**, and understand that the recordings will be used for transcription and analysis purposes only and destroyed immediately after completion with no means to link the data back to me as an individual.	
5.	I understand that my information may be subject to review by responsible individuals from the University and funder (e.g., ethics scientific officer) for monitoring and audit purposes.	
6.	I understand the potential risks of participating and the support that will be available to me should I become distressed during the course of the research.	
7.	I understand the direct/indirect benefits of participating.	
8.	I understand that the data will be collected for research purposes only and will not be used for any commercialization, unless otherwise specified, and is solely the responsibility of the researchers undertaking this study.	
9.	I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason and without it affecting any of my rights. I understand that if I decide to withdraw, any personal data I have provided up to that point will be deleted unless I agree otherwise.	
10.	I understand that I will be compensated, **if applicable**, for the portion of time spent in the study if I choose to withdraw.	
11.	I understand that apart from the compensation of my time described above, **if applicable**, I will not benefit financially from this study or from any possible outcome it may result in in the future.	
12.	I understand that the data gathered during this experiment will be reported anonymised across all participants without any means of identifying me as individual.	
13.	The non-identifiable data will be summarised in a report, and/or scientific publications (e.g. in a journal or conference) and I wish to receive a copy of it.	☐ YES ☐ NO

14.	I hereby confirm that I understand the inclusion criteria as detailed in the Information Sheet and explained to me by the researcher and I also confirm that I do not have mental health issues	
15.	**If applicable**: I hereby confirm and consent that audio and video recordings will happen during the experiment and that I was instructed about how the data are processed, stored and destroyed after usage. Furthermore I confirm that I'm informed about how these recordings are annoymized.	
16.	I hereby confirm that: (a) I understand the exclusion criteria as detailed in the Information Sheet and explained to me by the researcher; and (b) I do not fall under the exclusion criteria.	
17.	I am aware of who I should contact if I wish to lodge a complaint.	
18.	I understand what personal data is used for this study and how it will be processed to comply with the data protection privacy notice described in the Information Sheet. I have also had the opportunity to ask questions which have been answered to my satisfaction.	
19.	I voluntarily agree to take part in this study.	

If you would like your contact details to be retained so that you can be contacted in the future by UCL researchers who would like to invite you to participate in follow up studies to this project, or in future studies of a similar nature, please tick the appropriate box below.

	Yes, I would be happy to be contacted in this way	
	No, I would not like to be contacted	

_____	_____	_____
Name of participant	Date	Signature
_____	_____	_____
Researcher	Date	Signature

Appendix 3.2 Qualtrics Consent Form Format

Dclinpsy Gaming Project Consent Form

CONSENT FORM FOR ADULTS AGED ABOVE 18 YEARS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part.

If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in.

You will be given a copy of this Consent Form to keep and refer to at any time.

I confirm that I understand that by selecting 'Yes' for each box below I am consenting to this element of the study.

I understand that it will be assumed that an answer of 'no' to boxes means that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element that I may be deemed ineligible for the study.

1. I confirm that I have read and understood the Information Sheet for the above study. I have had an opportunity to consider the information and what will be expected of me. I also have the contact information necessary to ask questions to the research team before I take part.

○ Yes
○ No

2. I consent to participate in the study. I understand that my personal information, if applicable, (name, age, email address) will be used to contact me, send me any materials, or used only for the purpose explained to me in the Information Sheet.

○ Yes
○ No

3. I understand that my data gathered in this study will be safely stored in password-protected devices. It will not be possible to

identify me in any report and/or publications.

- ○ Yes
- ○ No

4. I consent to my interview being audio/video recorded, if applicable, and understand that the recordings will be used for transcription and analysis purposes only and destroyed immediately after completion with no means to link the data back to me as an individual.

- ○ Yes
- ○ No

5. I understand that my information may be subject to review by responsible individuals from the University and funder (e.g., ethics scientific officer) for monitoring and audit purposes.

- ○ Yes
- ○ No

6. I understand the potential risks of participating and the support that will be available to me should I become distressed during the course of the research.

- ○ Yes
- ○ No

7. I understand the direct/indirect benefits of participating.

- ○ Yes
- ○ No

8. I understand that the data will be collected for research purposes only and will not be used for any commercialization, unless otherwise specified, and is solely the responsibility of the researchers undertaking this study.

- ○ Yes
- ○ No

9. I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason and without it affecting any of my rights. I understand that if I decide to withdraw, any personal data I have provided up to that point will be deleted unless I agree otherwise.

- ○ Yes
- ○ No

10. I understand that I will be compensated, if applicable, for the portion of time spent in the study if I choose to withdraw.

- ○ Yes
- ○ No

11. I understand that apart from the compensation of my time described above, if applicable, I will not benefit financially from this study or from any possible outcome it may result in in the future.

- ○ Yes
- ○ No

12. I understand that the data gathered during this experiment w be reported anonymised across all participants without any means of identifying me as individual.

- ○ Yes
- ○ No

13. The non-identifiable data will be summarised in a report, and/or scientific publications (e.g. in a journal or conference) and I wish to receive a copy of it.

- ○ Yes I consent and would like to receive a copy
- ○ Yes, I consent and would not like to receive a copy
- ○ No I do not consent

14. I hereby confirm that I understand the inclusion criteria as detailed in the Information Sheet and explained to me by the researcher and I also confirm that I do not have mental health issues

- ○ Yes
- ○ No

15. If applicable: I hereby confirm and consent that audio and video recordings will happen during the experiment and that I was instructed about how the data are processed, stored and destroyed after usage. Furthermore I confirm that I'm informed about how these recordings are annoymized.

- ○ Yes
- ○ No

16. I hereby confirm that: (a) I understand the exclusion criteria as detailed in the Information Sheet and explained to me by the researcher; and (b) I do not fall under the exclusion criteria.

- ○ Yes
- ○ No

17. I am aware of who I should contact if I wish to lodge a complaint.

- ○ Yes
- ○ No

18. I understand what personal data is used for this study and how it will be processed to comply with the data protection privacy notice described in the Information Sheet. I have also had the opportunity to ask questions which have been answered to my satisfaction.

- ○ Yes
- ○ No

19. I voluntarily agree to take part in this study.

- ○ Yes
- ○ No

If you would like your contact details to be retained so that you can be contacted in the future by UCL researchers who would like to invite you to participate in follow up studies to this project, or in future studies of a similar nature, please tick the appropriate box below.

- ○ Yes
- ○ No

Appendix 3.3 Signposting letter for non-participants

Hello,

Thank you very much for responding to the screening form for our research project about the thoughts and feelings related to video gaming.

Unfortunately we won't be able to invite you to the interview phase as your responses on the screening form fell outside of the quite specific score ranges and population group we are going to be focusing on for this particular study.

We recognize that some of the themes that we asked about may have been difficult so please consider looking at some helpful signposting resources below:

- https://www.nhs.uk/mental-health/feelings-symptoms-behaviours/feelings-and-symptoms/anxiety-fear-panic/
- https://www.mind.org.uk/information-support/guides-to-support-and-services/peer-support-groups/how-to-find-a-support-group/
- You could also contact Samaritans, call: 116 123 or email: jo@samaritans.org if you need someone to talk to
- If you believe you need mental health support please visit: https://www.nhs.uk/nhs-services/mental-health-services/
- If it is an emergency: If you or someone else is in danger, call 999 or go to A&E now. If you need urgent help for your mental health, get help from NHS 111 online or call 111.

Once again thank you very much for your interest and if you have any further questions please feel free to get in touch with the research team:

John Anderson
Email: john.anderson.16@ucl.ac.uk

Martin Dechant
Email: m.dechant@ucl.ac.uk

Appendix 4: Interview Schedule

Introduction:

Thank you very much for agreeing to be part of this study about the relationship between video gaming and thoughts and feelings you experience associated with it. The interview should last between 45 minutes and 1 hour.

Please remember you can end the interview at any time, and you don't have to answer anything you don't want to. At the end I will carry out a short check in about how you are feeling and provide signposted resources.

If we lose connection at any point, please log back in. If any significant technical issues arise we will be in contact via email.

Does that sound okay to you? Do you have any questions for me before we begin?

Introduction- broader questions

3. Can you tell me how much time you typically spend gaming in a given week?
4. Can you tell me about what kinds of gaming you take part in and what aspects of these draw you into this?
5. What would you say are the main reasons you game, and can you tell me a bit more about that?

Time-specific questions:

6. Could you describe any kinds of triggers or situations that may influence you wanting to game?
7. In the build up to a gaming session... what kind of thoughts and feelings do you usually experience? (ie. in the hour before)
8. During a gaming session... what thoughts and feelings do you have while you are gaming?
9. Following the gaming session (in the hour after) what thoughts and feelings are you experiencing?

Conclusion- broader questions:

10. How would you say your gaming impacts your daily life and wellbeing?
11. Are there ways in which gaming is helpful for you?
12. Are there ways in which gaming is unhelpful for you?
13. Have you ever had any worries about your gaming?
14. What do you think others like friends or family think about your gaming and how does this make you feel?
15. What would you like others to know about the role gaming plays in your life?
16. Is there anything else you would like to add before we end the interview?

Appendix 5: Examples of steps of Reflexive Thematic Analysis

Comments during familiarization and initial coding

Quote	**My comments during familiarization phase and initial codes**
"It feels like you kind of fall back down to Earth… You're back in reality, the excitement's worn off and any kind of problems you were worried about… All the worries that you had before you started like "Oh well, now I have to deal with being an adult again"… It's a little bit of a weird roller coaster….Where you're like, really happy and relieved at the start and then that slowly fades and your kind of… "what can I do to avoid dealing with my own real life stuff in this situation?" – Participant 3	Really captures the wider experience and includes a lot of his previous quotes and codes. EMOTIONAL Rollercoaster. Short term gains of gaming (relief and accomplishment) before 'falling back to earth'. Could be good quote to use.
"We needed to make a lot of effort on studying to make sure we could get into a good college or good high school… I borrowed my friend's phone to play games… and it was found by my father and mother… they were very angry and they smashed that phone… It kind of almost broke the relationship between us. Those years were kind of the most stressful years of my life." Participant 7	Really important quote that highlights the pressure of academic success in this person's cultural context and the expectations from parents and how this could lead to more conflict about gaming. I actually am very familiar with this kind of academic pressure, which I think helps me to empathize a bit more with this... or at least have a relatively good understanding.
"There are other times in my life where I've used gaming… for different reasons. When I was growing up, it was around domestic violence, it was around poverty. It was around neglect… it wasn't just immersive for me… My sister would come in and watch just to be out of the… communal space where there'd be fighting going on… I was a kid then… I didn't know that's what I was around. -Participant 6	I was really struck by this quote when I heard it in the interview and I am reliving those emotions now coding. This felt incredibly touching to hear that gaming had played such a powerful role in coping through horrible circumstances of abuse and neglect and poverty. But what really impacted me even more was how gaming was the activity that his sister could also join in to get away from the conflict.
I don't know… Like you know, I think that there's a, there's a narrative around playing video games that comes with like, a certain kind of psyche or kind of person, like lazy or slobbish… or like a waste of your time, maybe, which I don't buy into. But I think, you know… Just, you know, portrayed in media, you get this kind of, like, nerdy, dorky… like outcast of society who lives in a basement. -Participant 4	This came up a lot for me, I would get saddened to hear the derogatory narratives spoken about gamers. I was quite aware of some of these narratives going into the project, but I have learnt more about them and their impact here. In these moments I would feel a sense to reassure or validate how difficult the impacts of these might be. I sometimes would say that I think these narratives / stigmatizing terms are awful or that I was sorry someone has experienced the impacts of these. It didn't feel right not too.

Example of initial coding

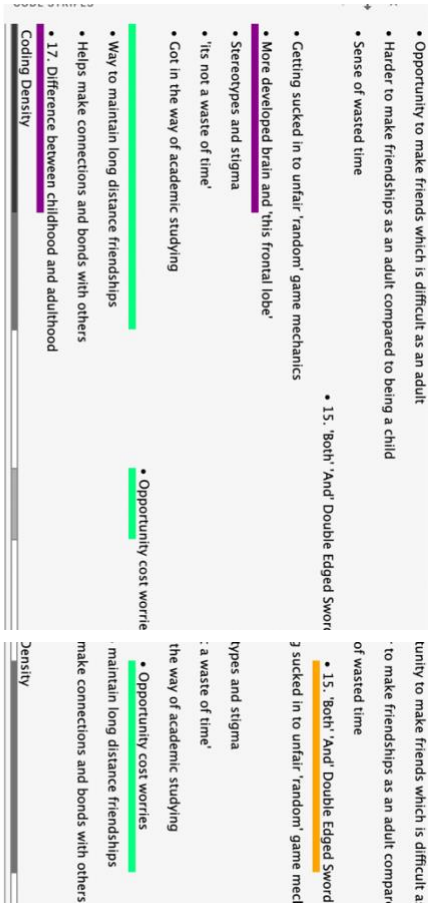
Participant 10 33:19
Yeah, I think recently more than anything. So my decision to… to uninstall Destiny two was a big… a big one. There is a website that they made called timewastedondestiny.com I think, and you can log in and you can see just how much time you've wasted and where you've wasted it because there's a big sentiment in the community that you know you waste all your time even outside of the activities just in loading screens and you don't necessarily realise how much time it is until you look at it. And yeah, recently I don't what it is. It could be this whole frontal lobe thing that people are telling me that I've got now. But you know it's it.... It does make me think about where could I have spent that time, you know, like I'm sure that's there's… there's social stuff. But when I was playing it alone, could I have been out with friends? Could I have been… I don't know, exercising? Could I have been… You know, it's… a lot of it is opportunity cost for me and I think.

Anderson, John 34:11
Yeah. Hmm.Yeah. Well, and and I guess, you know, again might be obvious, but what is important to you about that? It sounds like this is an important thing for like time and resource, yeah.

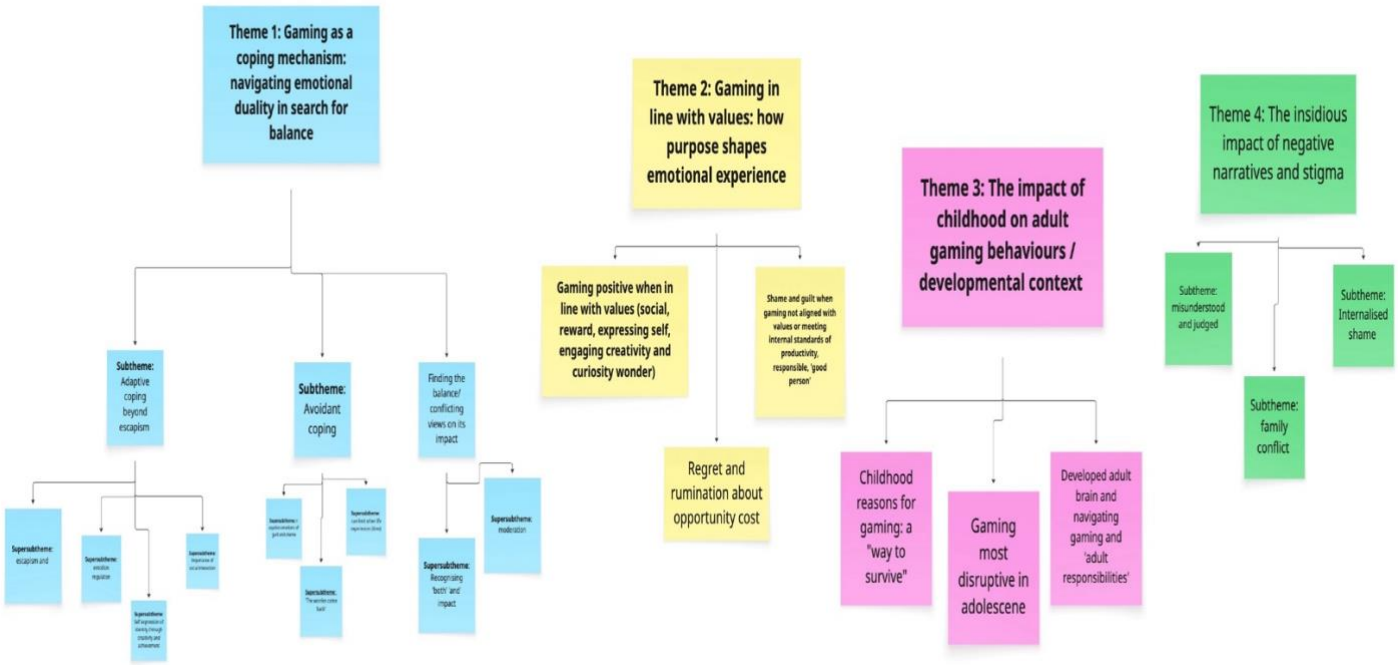
Participant 10 34:28
Yeah. Yeah. Well, there was something I forget where I heard it. I think it's like you have 4000 weeks or something. I don't know if you've heard this.

Anderson, John 34:41
In our lives?

Participant 10 34:42
Yeah. In… I think in your entire life… I don't wanna… don't quote me on that. But it was… it was not very many weeks and I… I saw it and I was like "oh, that's not very many"… And I… I get that, you know, people are like "life is short". But I think life is quite long at the moment for me. I think you know, I'm relatively young and there's gonna be a lot of time left in my life, but… I do wonder if… if I wasted a little bit of my early 20s and my… my late teens kind of playing video games rather than doing other things… 'Cause. Yeah, it was a lot of fun. And I… I like it. I like it a lot. And that's I do it. But yeah, I do think about that a lot.



Early iteration of thematic map



Example of theme and associated codes

Name	Files	References
'Both' 'And' Double Edged Sword Nature of Gaming	12	126
How GAMING IS HELPFUL	11	45
Can provide new perspectives on things	1	1
Coping aspect	6	16
'Its like automatic'	2	2
Can be life saving distraction	1	1
Can help 'feel' if emotions bottled up	1	1
Gaming can be catharctic	1	1
Gaming helps relax and 'close down' thou...	0	0
Good distraction	2	2
Helps release frustration	1	1
Helps when bored	3	4
Occupies mind from what you are thinking...	1	1
Prevents other unhelpful coping strategies	1	2
Way to calm down	1	1
Enhances cognitive, problem solving and vis...	2	2
Helpful when gaming is intentional and for rig...	1	1
Helps fulfill need for social interaction	1	1
Maintains or enhances relationships	8	18
Discussing daily lives with one another an...	1	1
Helps make connections and bonds with o...	5	8
Opportunity to make friends which is diffic...	1	1
Way to maintain long distance friendships	3	4
Way to spend time with loved ones	2	4
Outlet for creativity or curiosity	5	6
HOW GAMING IS UNHELPFUL	12	74
'Chasing a feeling'	1	1
Can impact on social and romantic relationshi...	3	4
Distress if cannot play	1	2
Financial costs and stress	2	2
Fixated thinking about gaming impacts daily l...	1	1
Gaming can cause negative emotions	6	11
Gaming impacted academics and future...	1	3
Generally positive if udner control	2	2
Impact of time spent playing	2	3
Impacted studies	1	1
Lack of control over gaming behaviours	2	3
Negative impacts on sleep	3	6
Negative sense of productivity and achievem...	2	3
Negative social interactions with other gamers	2	6
Opportunity cost... gaming is easier to do tha...	2	3
Procrastination and less productivity	4	5
Recognition it is not always helpful coping str...	2	5
Rumination	1	1
Small consequences can contribute to larger...	1	1
Temptation to stay home and miss out on oth...	1	1
Toxicity and discrimination amongst gaming...	2	7
Using Games to Escape Real Life	1	3