Exploring the player experience of people with persistent low mood

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Abstract

Games are a popular and accessible hobby which provide a range of emotional and mental benefits. One area they may help with is through alleviating the symptoms of persistent low mood. Games seem to boost mood in a general population but this has not been well-explored in low mood specifically. Additionally, depression (of which persistent low mood is a key symptom) has been associated with some negative effects of gaming. Exploring the player experience of persistent low mood gamers could therefore help inform research around the benefits of gaming for mental health.

The first study examined low mood generally by distributing a qualitative survey asking about the impact of gaming on mood during the Covid-19 pandemic (N=285). Results showed that games seemed generally helpful at improving various moods during this time period, but did not address aspects of persistent low mood specifically. The second study aimed to close this gap by conducting qualitative interviews (N=18) with persistent low mood gamers, asking about gaming preferences, habits and attitudes towards play. Through Reflexive Thematic Analysis, 5 key themes were developed which outlined the impacts of gaming on mood, motivations for persistent low mood players and attitudes towards gaming.

The final study explored the moods and motivations of persistent low mood gamers 'in the moment' through the use of a qualitative diary study. These findings found gaming rarely had a negative effect on mood. Additionally, there were a variety of reasons for play identified which had different impacts on mood.

Overall, this thesis made three key contributions to knowledge: 1) People with persistent low mood desire low-effort gaming experiences, 2) Games have an overall positive impact on persistent low mood and this impact motivates play, and 3) Persistent low mood symptoms may reduce the benefits gained from gaming.

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I loved every minute.

Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for a degree or other qualification at this University or elsewhere. All sources are acknowledged as references.

Some of the material in this thesis has been published previously and is declared here:

* Ballou, N., Deterding, S., Iacovides, I., & Helsby, L. (2022, April). Do people use games to compensate for psychological needs during crises? A mixed-methods study of gaming during COVID-19 lockdowns. In Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (pp. 1-15).

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* The work presented in this paper is not the same work presented in this thesis, but was part of the same initial project and uses the same data set. Details of this are outlined in Chapter 3

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1. Thesis Introduction

The discussion around video games and wellbeing has been present almost since the conception of video games, with early concerns surrounding violence and satanic influence in gaming (Lancaster, 1994), and modern research flipping the narrative and focusing more on the potential benefits of gaming (eg. Pallavicini, Pepe & Mantovani, 2018). This new focus has been paired with an increased understanding of mental health more broadly in society. Mental health is not just considered in the presence of conditions such as depression or schizophrenia, but also in their absence. Mental health now refers to all aspects of mental, psychological and emotional wellbeing, and includes examining flourishing (Jones et al, 2014) and other positives alongside the traditional considerations of mental health conditions. Additionally, there is more understanding of gaming as an art form and hobby. Combined, these things suggest it is important now more than ever to consider the impact games can have on mental health and wellbeing.

Games as commercial entities are very popular, with around 62 million units of digital games being sold in 2022 (Baker, 2023). Games are also an increasingly popular hobby, with up to 88% of young adults in the UK (Baker, 2023) and 82.9% of internet users in the US playing video games in some format (Clement, 2022). During the pandemic, sales of *Animal Crossing: New Horizons* broke records by selling 11.77 million units worldwide within 12 days in March 2020 (Nintendo, 2020) which highlighted the potential games have to help in the mainstream. Compared to accessing therapy, games are cheaper, more widely available and are often already a part of people's routines. Having said that, it is worth making explicit that there is a difference between games designed as a form of therapy and commercial games, which have therapeutic potential. For the scope of this work, the latter will be the focus.

Games have the potential to help with many different aspects of wellbeing and mental health, across many different domains (Halbrook et al, 2019; Primack et al, 2012; Pine et al, 2020). One particular area of promise is their potential to help alleviate the symptoms of persistent low mood. 'Persistent low mood' is a term used throughout this work to refer to a symptom of depression and other mental health disorders which also exists outside a clinical diagnosis as a part of everyday life. Low mood can be defined generally as a non-clinical, situational state of sadness, lethargy, emotional flatness or discontent. Persistent refers to the prolonged nature of the low mood, which is often associated with the more clinical side. As mentioned, persistent low mood is a symptom of depression and shares many associated aspects, such as rumination (Nolen-Hoeksema & Morrow, 1994), a lack of motivation (Grahek et al, 2019), a lack of energy (Swindle et al, 2001) and executive function difficulties (RP Alves et al, 2014). There may also be problems with socialising (Santini et al, 2015), addiction (Crnić et al, 2016) and comorbid conditions, such as anxiety (Tiller, 2012) or chronic pain (Holmes et al, 2013).

Current research has demonstrated that games may help with many different aspects of wellbeing and mental health. Playing games may improve psychological wellbeing

(Pallavicini, Pepe & Mantovani, 2018), aid with reducing stress (Pine et al, 2020), help improve emotional regulation (Villani et al, 2018), aid recovery post-work (Mella, Iacovides & Cox, 2023) and provide many other benefits that come from social play (Halbrook et al, 2019). Games have also been shown to help with certain symptoms of mental health disorders, such as anxiety (Pallavicini, Pepe & Mantovani, 2021), PTSD (Elliot et al, 2015) and depression (Ruiz et al, 2022), among others. Within this work however, there is a gap surrounding persistent low mood specifically. Games may be capable of boosting negative moods (eg. Bowman & Tamborini, 2012) but people with depression, which is strongly associated with persistent low mood, are potentially vulnerable to addictive play (Kim et al, 2022) and may report some guilt or other negative emotions around gameplay.

It is also not often clear why games might help, although there is an increased focus on work like this over the last few years. Some evidence suggests that motivation to play is important (Mandryk et al, 2020), other work suggests that type of game is a key factor or individual qualities (Russoniello, O'Brien & Parks, 2009). Some qualitative work conducted around related topics such as post-work recovery (Mella, Iacovides & Cox, 2023) or PTSD (Carras et al, 2018) has been useful for beginning to answer these questions, but no such work has been conducted around persistent low mood yet. Therefore, this thesis aims to explore and unpack the player experience of persistent low mood gamers in order to better understand what factors of gameplay might be beneficial, detrimental or otherwise meaningful in the context of low mood.

1.1 Research Aims and Questions

The main thesis question is **What is the player experience of people with persistent low mood?**.

Within this question, there are several different components to consider. Firstly, there are aspects related to a persistent low mood population. These include characteristics, such as low mood, low energy or other symptoms, but also desires: what someone with persistent low mood might want to get from their gameplay and why they engage with games.

To unpack these aspects, four research questions were chosen:

RQ1. How do games impact low mood?

Low mood has been chosen as the focus here as it is the key defining characteristic of persistent low mood. Prior research has begun to explore how games might impact different kinds of negative moods (eg. Bowman & Tamborini, 2012; Bowman & Tamborini, 2015) and there is also evidence that games can facilitate positive mood (eg. Pine et al, 2020) which makes low mood a promising characteristic to focus in the context of gaming.

RQ2. Why does someone with persistent low mood play games?

Motivation may be an important factor when considering the emotional outcomes of gaming (eg. Mandryk et al, 2020). Motivation has also been identified as a key part of the

player experience in general gaming literature (eg. Hughes, Flockton & Cairns, 2023). Understanding why someone with persistent low mood engages with games could explain what makes a game appealing to someone with persistent low mood, which is a useful factor to consider if the ultimate goal is to contribute to work around games and wellbeing. It is also important to understand what people with persistent low mood get from their gaming as this is likely a significant part of how games affect them.

RQ3. What effect do games have on people with persistent low mood?

There is currently little work examining the effect of gaming on persistent low mood and associated symptoms and factors. One key part of this debate is whether or not games could have an overall positive or negative effect on persistent low mood. Literature focused on the general population seems to lean towards games being beneficial for mood and wellbeing but this work does not capture any potential nuances which might exist for a persistent low mood population specifically. For example, persistent low mood is a key symptom of depression and depression is often linked to addictive gaming habits, which are detrimental (Kim et al, 2022). Knowing whether gaming overall is more beneficial or detrimental to a persistent low mood population is therefore an important part of the player experience which is yet to be addressed by the literature.

RQ4. How do people with persistent low mood feel about their gaming?

Understanding how someone feels about their own engagement with games is an important aspect of the player experience. If someone with persistent low mood primarily feels bad about the fact they play games, then games are unlikely to be a useful tool when it comes to helping people with persistent low mood. Similarly, if someone feels good about their gameplay and enjoys engaging with games, then this could make games a particularly useful tool for reaching people with persistent low mood.

How these questions were addressed will now be outlined, along with the thesis structure.

1.2 Thesis Structure and Methods

In total, three qualitative studies were conducted to address the four thesis research questions. Two types of qualitative analysis were carried out across the three studies: qualitative content analysis (Mayring, 2004) and reflexive thematic analysis (Clarke & Braun, 2013). Study 1 primarily addressed RQ1 whilst Study 2 focused on RQ 1-4 and Study 3 addressed RQ1-3.

Study 1 was an unplanned opportunity to study low mood in the unpredictable context of the Covid-19 pandemic. This allowed for an exploratory examination of what moods might be experienced during gaming and what potential effect games might have during this time. Isolation also made it seem likely that people would be engaging with videogames more due to other hobbies being unavailable. Therefore, a survey study was conducted to examine what kinds of moods people were experiencing outside and inside of play. The chosen method of

analysis was qualitative content analysis (Mayring, 2004) since the goal of the study was to create a list of moods and feelings experienced. Though low mood was not as prevalent in the sample as expected, Study 1 was still able to shed some light on how gaming might impact mood in times of stress and other negative emotions. It addressed some aspects of RQ1 but the results could not answer the questions about persistent low mood specifically.

Honing in on persistent low mood, Study 2 was a semi-structured interview designed to unpack aspects of all four research questions. This time, participants were recruited who had persistent low mood specifically. Reflexive thematic analysis (Clarke & Braun, 2013) was selected as this work was focused more on exploring the connections and meanings related to aspects of the player experience. 5 themes were created which highlighted different impacts of gaming on mood and different interactions between low mood symptoms and gameplay. Additionally, themes captured several key player motivations and attitudes.

The remaining aspects of RQ 1-3 were explored in Study 3. The focus of this study was to explore how games impact mood 'in the moment' in a persistent low mood population. Reasons for play were also examined in the context of specific play sessions. Participants were asked to keep a diary of their gameplay over the course of 10 days, recording the impact of games on their mood and their reasons for play. Qualitative content analysis (Mayring, 2004) was once again chosen as the aim to create categories of feelings and reasons for play. Study 3 shed light on how games impacted low mood, why people with persistent low mood played games and whether games had more of a positive or negative effect on people.

The key contributions of this work will now be highlighted.

1.3 Contributions

The main contribution of this thesis is one of knowledge, though there are some secondary contributions in terms of methodology and potential application to games design.

Focusing on the primary contribution of knowledge first, this work outlines some of the key aspects of the player experience of people with persistent low mood. Prior to this work being conducted, there was little known about the specific impact of games on the mood of people with persistent low mood. There was also little known about why they might play games or whether engaging with a game for certain reasons might result in certain outcomes. These findings outline whether games overall have a positive or negative impact on people with persistent low mood, as well as illustrate potential patterns concerning specific feelings experienced before and after gameplay. Several key motivations for play are highlighted, alongside some reasons for play which seem fairly specific to a persistent low mood population and are not previously well-represented in the literature. Finally, this work also explores attitudes held towards gameplay by a persistent low mood population which encompasses both positive and negative views of gaming. All of these factors help foster the understanding of the player experience of people with persistent low mood in a way not previously explored.

The contributions to methodology are small and were not the primary focus of the thesis, but there are some contributions in terms of Study 3 and the diary-based approach. Several questions were included in Study 3 that were intended to measure both the experience of filling in a diary of gameplay and to gauge how accurate the diary data might be in terms of what it intended to measure. These questions found that the experience of keeping a diary of gameplay was mostly a positive one for participants. Diary-keeping was not too demanding for participants with persistent low mood and did not seem to have any negative impacts on their mental health or mood. In terms of accuracy, participants seemed willing to be honest about when the diaries were filled in which is a useful step in considering what the data recorded in diaries actually represents. The thesis therefore suggests that diary methodology in general might be a useful tool when it comes to measuring gameplay in specialised populations, and introduces some potential design features which might help improve the interpretation of diary data.

The final contribution this thesis work makes is to the practical field of game design. Although again this contribution was not the main focus, by identifying key aspects of games which seem to promote desirable play experiences in persistent low mood players, these findings could be incorporated into the design of both commercial games and serious games intended to focus on addressing mood and related concepts. Designing serious games for improving mood and mental health requires understanding the needs of the population and what might prompt engagement with a game, both of which this thesis outlines. The application to commercial games is less direct but there is a growing interest in the games industry to create games which have a positive impact on people, and this work also identifies some key features which might facilitate this positive impact.

1.4 Statement of Ethics

Throughout this thesis work, great care was taken to ensure ethical procedures were followed. Some key ethical considerations were:

- **Ethical Approval:** All studies gained ethical approval either from Queen Mary University of London (Study 1) or the University of York's Physical Sciences Ethics Committee (Studies 2 and 3).
- **Participant Consent and Wellbeing**: Participants were presented with full information and consent sheets which needed to be signed and returned prior to participation. To avoid perceived pressure from the researcher, participants in Studies 2 and 3 were sent these sheets by email before the interview stage.
  As the topics concerned mood and other aspects of mental health, questions were carefully designed to avoid asking about specific aspects of wellbeing outside of the context of gaming. Participants were told to share only what they felt comfortable with. Relevant services of help were signposted on both the information sheets and verbally (where applicable) to participants. In the case of Study 3, additional questions were added into the post-diary interview to assess whether the experience had been upsetting. Participants reported it as a positive experience on the whole.

- **Anonymity and Confidentiality**: Great care was taken to ensure anonymity was preserved at every possible step. Recordings were only shared with the primary researcher and were viewed in a private office space for transcription. During transcription, all participants were anonymised through the use of a pseudonym or participant number. Any potentially revealing information which was not relevant to the research questions was altered, such as places lived in or group membership. Minimal demographic information was obtained in order to further preserve participant identity due to the nature of the work being qualitative. These aspects are discussed further in the relevant chapters

- **Data Management and Protection:** All data was stored in password protected folders on the University of York Google Drive. The third party service used for transcription was designed for academic use and complied with the GDPR. All data will be deleted 10 years after the last date of access in accordance with data storage policies.

2. Literature Review

To motivate the aims and focus of this thesis, there are several key areas of background research which must first be considered. Breaking down the overall question of 'What is the player experience of people with persistent low mood?', we must define what persistent low mood means in this context and what we already know about the player experience of this population. To address the research questions concerned with the impact of mood on gaming and the reasons for play, it is useful to outline what is already known about mood and motivation in a general population in relation to gaming. This chapter will therefore focus on outlining these aspects.

2.1 Defining Moods and Emotions

Before focusing on persistent low mood and defining this term further, it is important to consider the wider context of what a mood is. The terms 'mood', 'emotion' and more broadly, 'feeling' are all words used in both daily life and academic work to describe emotional, cognitive and physical states someone can experience. These are sometimes considered 'affective states', although affect is also used as a term both interchangeably with and distinctly from mood. As the focus of this thesis is primarily on a qualitative exploration of player experience, biological and neurological classifications of emotions and moods will not be discussed here. Instead, the focus will be on how the terms are used semantically in both research and daily life.

Early work into defining moods and emotions focused less on the word 'emotions' and instead on the word 'affect' (Alpert & Rosen, 1990) which was a term defined in the DSM-III as 'the transformation of an internal feeling into behavior which can be observed in overall demeanor or tone and modulation of voice' (American Psychiatric Association, 1980). This definition reflects that early research was conducted primarily around patients with schizophrenia and other related conditions, with the focus on how affect is expressed through voice and other behaviours being much more prevalent than in contemporary research (Alpert & Rosen, 1990). These early definitions suggest duration, subjectivity and links with cognition to be some of the key distinguishing factors between definitions of mood, affect, emotions and feelings, although only 'moods' were particularly defined at this time in research with the other terms being used somewhat interchangeably across studies. Additionally, this work focuses only on the use of the terms in academic research which limits the potential understanding of semantics in common parlance.

One key study which explored the distinction between common and academic usage of terms is Beedie et al (2005). In this study, participants were asked about the differences between mood and emotion. Their responses were analysed and compared to a similar analysis of academic work which distinguished between emotions and mood. Focusing on participants first, the three most commonly-mentioned distinguishing factors between mood and emotion were cause (65% mentioned), duration (40% mentioned) and control (25%

mentioned). Moods were identified as being 'background states' whilst emotions had specific causes. Moods were also often defined as lasting longer than emotions, though a few participants reported the opposite perception. In terms of control, participants felt that moods were something they had more control over to alter whilst emotions were less able to be altered consciously. Compared to definitions in the literature, participant responses aligned with cause (emotions having specific causes whilst moods do not) and duration for the most part (with moods lasting longer than emotions) but control was not often a factor considered in literature at the time. Other distinguishing factors mentioned by participants but not by the literature include moods being experienced as thoughts whilst emotions are experienced as feelings, emotions being more visible than moods, and moods being less definable than emotions. Participants also highlighted stability as a difference between mood and emotion, although there was no consensus on which of the two was more stable between participants.

These results can tell us several things about defining mood and emotion. Firstly, it is generally agreed between academics and the general population that moods last longer than emotions, are more general states compared to emotions which are reactions to stimuli, and that moods are something that people can consciously alter with effort. Secondly, this work tells us that there is still a lot of ambiguity in terms of how people distinguish between emotion and moods, and how the literature defines these terms in comparison to the general population. What this means is that if the goal of a study is to capture someone's experience, focusing on words such as 'mood' or 'emotion' may result in aspects of the experience being missed due to personal interpretation of what those terms mean. This may also lead to inaccurate assumptions being made during analysis if the researchers are using different definitions to their participants.

More recent work has also attempted to distinguish between moods and emotions more clearly (Fox et al, 2018). Here, moods are defined as 'an interaction between initial affect and its perception/regulation' with a duration lasting longer than emotions which are experienced very briefly. Emotions are also designed to give information about the current environment compared to moods which give information about the resources available to deal with the environment. Neither moods nor emotions are considered stable, with temperament being the stable factor dictating how someone feels in the long-term and both emotions and moods changing more frequently than temperament. Additionally, affective experiences are discussed which are defined as: 'an affective experience like feeling fatigued is not indicative of an emotion, although it can characterize a mood or temperament.'. Essentially moods, emotions, temperament and affective experiences all represent slightly different aspects of emotional experiences. These definitions show that work in defining emotions and moods has continued to evolve but that there are still complexities in establishing hard boundaries between the terms. Additionally, the semantic meaning of these words in the general population is less accounted for here.

Overall, there are a range of complexities and differences between contexts when it comes to defining the terms 'mood' and 'emotion'. For the current review, the same terms as used in the original studies will be used here. This is primarily 'mood' and the forms of measurement for these moods will be given where relevant. For original research conducted

in this thesis, the definitions will be outlined in more detail in the relevant chapters. The main key term of 'persistent low mood' will be defined in more detail now.

2.2 Persistent Low Mood

Persistent low mood can be defined as a symptom of depression and other mental health disorders which also exists outside a clinical diagnosis as a part of everyday life. Low mood is defined broadly as a non-clinical, situational state of sadness, lethargy, emotional flatness or discontent. Persistent refers to the prolonged nature of the low mood, which is often associated with more clinical aspects and some of the definitions of mood discussed in the previous section. Throughout this review, persistent low mood will be discussed within the context of it being a key standalone symptom of depression without any clinical diagnosis being necessary to its definition, although this does not exclude the potential for a clinical diagnosis. In some contexts, persistent low mood and depression can be used interchangeably, with depression referring to the experience of low mood rather than a clinical condition (Roberts, 2013).

Persistent low mood is worth focusing on as around 5% of all adults suffer from a depressive disorder (WHO, 2023) of which persistent low mood forms a key part. For mood disorders more broadly, this figure can be as high as 9.7% in adults (Harvard Medical School, 2007) and 14.3% for adolescents (Merkagas et al, 2010). Additionally, these figures don't necessarily account for undiagnosed conditions. Some studies have found that 31.45% of people who score as having moderate to severe depression on a clinical measure did not have a formal diagnosis (Handy et al, 2022). Persistent low mood exists outside of these clinical cases and so this highlights low mood as a common problem and one which is potentially growing (Goodwin et al, 2022; Dykxhoorn et al, 2024).

So why does persistent low mood matter in the context of gaming? Firstly, there is a range of evidence which suggests that gaming might be suitable at alleviating persistent low mood and its associated symptoms. While gaming can obviously not replace therapeutic treatment, gaming is relatively accessible comparable to therapy, especially with the rise in popularity of mobile games (Statista, 2025). Meanwhile, therapy remains hard to access with about 36.2% of people with common mental health disorders receiving any kind of treatment (Lubian et al, 2016), even with the increased availability of online forms of therapy (Buss et al, 2024). If games could be utilised to help people with persistent low mood, this could be hugely beneficial but more research needs to be conducted to better understand what kind of an impact gaming might have on low mood.

Secondly, gaming is a popular hobby with around 3.32 billion people playing games globally in 2024 (Duarte, 2025), meaning that it is likely people with persistent low mood may already be gaming. It is therefore important to understand how gaming might affect and interact with persistent low mood. Does it have an impact with regards to mental and emotional health and if so, is that a positive or negative one? There has been a rise in therapeutic or serious games in recent years, which refers to games designed with a specific purpose; in this case, treating and alleviating depressive symptoms. For the purposes of designing these games, it is useful to know what kinds of games people with depressive symptoms and low mood are already drawn to, as well as what aspects are helpful or harmful. Studying existing gaming experiences can therefore inform best practice.

Finally, there is some research to suggest that gaming might have a negative interaction with or impact on persistent low mood. Depression is the most commonly studied and reported health factor associated with gaming disorder (Düll, Müller and Steins-Loeber, 2024) although it is not fully clear whether this relationship is directional or reciprocal (Rapinda et al, 2021). While several studies have focused on examining this potential link, there is a general lack of research exploring the potential negative interactions of games and depressive symptoms through the lens of player experience. By using this approach, there is potential to understand these interactions further from a player perspective.

2.3 The Player Experience of Persistent Low Mood Gamers

In terms of player experience and gaming habits, there has not been a lot of research on persistent low mood specifically. Existing research relating to persistent low mood falls under two categories: research into gaming and mood in a general population, and research into gaming and depression. Research into moods in a general population is important because knowing if and how gaming affects mood might offer insight into how persistent low mood might be affected by gaming. Understanding how depression and gaming might interact is important because persistent low mood is a key symptom of depression and players who experience persistent low mood will likely also experience other depressive symptoms, such as low energy, low motivation or rumination.

2.3.1 Gaming, Mood and Motivation in the General Population

There have been a wealth of studies examining how gaming might influence mood, with the majority of studies suggesting that games might be capable of boosting or alleviating negative moods. One large scale study by Vuorre et al (2023) looked at over 60,000 play sessions from 8695 players of Powerwash Simulator, a simulation game where the player washes objects at their own pace, and found that there was a boost in mood comparable or superior to other activities such as watching TV, shopping or reading. They also used predictive modelling to estimate that this mood boost would occur for 72.1% of similar players with the bulk increase occurring in the first 15 minutes of play, suggesting a fairly quick effect which might affect the majority of players. Similar effects have been found for other casual games, such as Animal Crossing/Plants vs Zombies (Johannes et al, 2021), Bejewelled (Russoniello et al, 2009) or mobile games, with as little as 30 minutes of play potentially boosting mood (Pine et al, 2020). Casual games are already hugely popular (Duarte, 2025) and are often easily accessible since they can be played through devices such as phones, as well as often being quick to play. These kinds of games may therefore be appealing to low mood players due to their accessibility and mood-boosting potential.

Other types of games have also been associated with mood-boosting or altering effects. One surprising finding is that violent games might help mood. Kersten and Greitmeyer (2022) found that habitual players of violent games felt better after play, whilst Fleming and Wood (2001) found that violent games affected general mood in a positive way in children, although very weakly and only in comparison to an analogue game. In a different study of positive emotions experienced during violent gameplay, four elements of gameplay were studied (seeing an opponent, hunting an opponent, fighting and killing) and all four of these were rated as positive emotional experiences, supporting the idea that violent games can boost mood in players (Lang et al, 2013). More specifically, players reported feeling in control, dominant and present during gameplay and had the greatest emotional arousal when seeing and fighting opponents. Feelings of control and dominance are particularly interesting to view through a persistent low mood lens. Depression is often associated with a sense of hopelessness or helplessness (Healy & Williams, 1988) and, although this appears to be a primary symptom of depression rather than a consequence of low mood (Harrison et al, 2022), it is not unreasonable to assume that players with persistent low mood may also experience these sensations and might seek out games which offer feelings of dominance and control.

This potential desire for control has some ties to Self-Determination Theory (SDT; Ryan & Deci, 2002; Ryan & Deci, 2022) a theory of general motivation often applied to games which states that humans have basic, essential needs and these needs drive and motivate behaviour. One of these needs is competency which refers to the ability and opportunity to express a skill in something effectively, and the sense of confidence and satisfaction that arises from that. Games may offer a sense of competency (Ryan, Rigby & Przybylski, 2006) and this could be linked to the mood boost component of dominance seen in Fleming and Wood (2001). Similarly, another basic need is autonomy which refers to whether people are able to act in a way which aligns with how someone views themselves. Autonomy is distinct from control but is traditionally characterised by a sense of choice and freedom (Ryan, Rigby & Przybylski, 2006; Tyack & Wyeth, 2021) which could feed into the association between feeling in-control and experiencing a mood boost reported in Fleming and Wood (2001). SDT might help identify avenues through which games can improve moods through needs satisfaction, which can help explain the potential positive impact of something traditionally viewed negatively, such as violent games.

Violent games often have a social or competitive component, and is it possible these elements are related to the positive effects on mood reported by studies. Rieger et al (2014) looked at players of Mario Kart, a competitive racing game, and found that as well as a general mood boost that came from gameplay, in-game success was a key driver in the reduction of negative moods and the increase in positive ones. A study looking specifically at the emotions experienced by male gamers during gameplay found that positive emotions such as amusement and enthusiasm were often associated with positive or successful performance outcomes, as well as winning and a general competitive environment (Behnke et al, 2021). Amusement in particular was associated with humorous social events, such as bad plays or last minute successes, highlighting the potential importance of social play. Negative emotions such as anger or sadness were also examined, and these were found to be associated with negative performance, technical issues and being 'let down' by other players on their teams. These findings are supported by other investigations into humour in games with players often using humour to boost the mood of teammates and themselves (Dormann & Biddle, 2009) and suggest that while social play may be a source of fun and positive emotion for many, it can also cause negative emotions when gameplay does not go well.

Considering social play further, a key motivation of play across a systematic review of 91 gaming motivation papers was found to be playing for social reasons (Cheah, Shimul &

Phau, 2022). Social gaming is associated with a range of benefits (Kowert, 2015; Bowman, Rieger & Lin, 2022) and some of the studies already discussed highlight the potential role of social play when it comes to the mood-boosting properties of games (Pine et al, 2020). Social gaming may contribute to wellbeing through aiding a wide range of wellbeing and recovery aspects (Bowman, Rieger & Lin, 2022) and it is not unreasonable to assume these would have associated positive effects on negative moods. When considering persistent low mood however, there is some evidence to suggest that social play may not be as desirable as in a general population. There may be complications with comorbid social anxiety when it comes to depressive symptoms (such as persistent low mood) in the context of internet gaming specifically (Wei et al, 2012), which could impact the kind of experiences persistent low mood players seek out and benefit from. On the other hand, outside of a gaming context, a sense of social belonging can act as a buffer against depressive symptoms such as low mood (Sargent et al, 2002) and this might translate to a gaming context as games can provide a strong sense of social identity which provides some positive benefits to players (Kaye, Kowert & Quinn, 2017). Ultimately the area of social gaming is not well-researched when it comes to considering low mood specifically, but it is likely that social gaming will play a key part in the low mood player experience and this is worth exploring further.

As well as gaming potentially boosting mood, there is some evidence to suggest that people select and use games specifically to target and alleviate negative moods. In the context of persistent low mood, this would mean that players would theoretically select games to help address their low mood, therefore experiencing a 'mood boost'. This idea is well-represented by Mood Management Theory (MMT; Zillman, 1988), a theory of media engagement and motivation which suggests that people select media with the dual goals of maximising positive moods and minimising negative ones, with the wide availability of media making it ideal for this purpose (Reinecke, 2017). There are four main dimensions of media which contribute to mood management: the excitatory potential, the absorption potential, the semantic affinity and the hedonic valence. The excitatory potential refers to how the media affects arousal levels, whilst the absorption potential is how much media is able to catch and hold attention. The overlap between how someone is currently feeling and how well the media matches that mood is called semantic affinity, with a greater discrepancy in semantic affinity being more likely to result in a mood change. Finally, media can have a positive hedonic valence (ie. be better at maintaining positive or pleasurable moods) or a negative hedonic valence.

It has been suggested (Reinecke et al, 2012) that there are two ways through which media and games can facilitate mood management. The first is by offering a distraction from a negative mood whilst the second is by actively addressing the cause of a negative mood, therefore repairing it. There is some evidence in the literature that games can offer both of these, with mood repair literature focusing mainly on task demand and related factors whilst the 'distraction potential' of games is often centred around escapism and similar concepts. Both of these concepts highlight ways that players with persistent low mood might select and use games. However, these concepts remained unexplored in the context of low mood. The focus has typically been on negative mood states such as boredom or stress, rather than sadness or other associated aspects of low mood. It is not yet known how effective games might be at repairing low mood specifically.

Focusing on mood repair first, there are a series of three studies which examined mood repair through gaming using Lock-On: Modern Air Combat, a flight simulator game which allows for the manipulation of task demand by offering three different levels of control: autopilot, medium command and full command. The first study (Reinecke et al, 2012) found that participants who had been put into a negative state by being given false negative feedback on their performance on a task had this negative state repaired after gameplay, including improved feelings of competence and autonomy. The next study (Bowman & Tamborini, 2012) examined how task demand might influence bored and stressed mood states. It was found that gameplay repaired both bored and stressed moods, with bored participants experiencing a greater increase in mood than stressed ones. These findings suggest there might be differences in how effective gaming is at alleviating certain moods, although it is worth noting that several reviews have found games to be capable of reducing stress (Russoniello et al, 2009; Villani et al, 2018; Pine et al, 2020; Pallavicini et al, 2021; Pallavicini et al, 2022). Still, there could be value in teasing out the effects of gaming on specific negative moods rather than looking at mood more broadly as several studies mentioned so far have done.

For task demand, medium task demand (and therefore control) resulted in the greatest mood repair (Bowman & Tamborini, 2012) which potentially challenges the idea that giving players control is universally a positive thing in terms of mood. Rather, it might be about finding the optimal control for each person or situation. There was also no relationship found between task demand and mood repair, meaning that a greater task demand did not result in greater mood repair or vice versa. A follow-up study (Bowman & Tamborini, 2015)

involved participants self-selecting their task demand level, with medium task demand being the most common choice. Though this study found high task demand to be the most effective at repairing moods rather than medium task demand, there were issues with mood manipulation in the 2015 study and pre-game differences between the stressed and bored participants which could explain this contrast in findings. In terms of MMT, these three studies suggest that media is capable of repairing some negative moods and that there is some possibility that participants will self-select media to manage and repair these moods. Medium task demand was the most effective at repairing mood in Bowman and Tamborini (2012) and was the most popular choice by participants in Bowman and Tamborini (2015). Due to the potential issues with sample differences in the 2015 study, it could be reasoned that participants did select the game most suited for mood repair despite high demand being more successful at mood repair in that study.

Other studies have supported the idea that participants will self-select media to manage moods and that this might be related to the demand features of gaming specifically. Weber et al (2020) compared mood repair across different forms of media with different levels of immersion and presence, including playing a VR game, playing a non-VR game and watching someone else play the same game. Only conditions involving active gaming showed increases in positive emotions post-engagement, with this relationship being mediated by player enjoyment. However, no reduction in negative emotions was found in any condition. Two stress-induction tasks were used to manipulate mood before play but only overall positive and negative emotions were considered in the analysis and results, so it is possible that the lack of mood repair for negative emotions seen here is due to stress being the prevailing negative emotion experienced by participants. As seen in, Bowman and Tamborini (2015), gaming might not always effectively reduce stress specifically which could explain these results. Stress has a complex relationship with depression (Hammen, 2015) and low mood (Bolger et al, 1989; Biddala et al, 2020) which is beyond the scope of this literature review, but it is worth bearing in mind that while gaming might help improve mood broadly, there might be specific moods it is less effective at alleviating. There is evidence that gaming can repair sad moods (Rieger et al, 2015) and this will be discussed later alongside how gaming and depression interact with each other.

So far, research outlined here has suggested mixed effects in terms of the ability of games to repair negative moods. Some additional evidence games might help mood comes from emotional regulation research. Emotional regulation refers to controlling and modifying

one's' emotions, similar to concepts described in MMT. There is some evidence to suggest that people who play videogames may be better at regulating their emotions than non-videogame players. One example of this is a study which looked at emotional regulation in a sample of adolescents and found that those who gamed regularly regulated their emotions more than non-gamers despite no differences in strategies (Gaetan, Bréjard & Bonnet, 2016). These results have been supported by a systematic review conducted by Villani et al (2018) who found both qualitative and cross-sectional studies showed that people who played games more regularly felt more intense emotions and were better at self-reported emotional regulation than non-gamers.

There is some evidence that the use of games to manage moods might be a conscious process, as suggested by MMT and the element of playing to escape or distract from negative emotions (Reinecke et al, 2012). When asked about motivations for play, several studies have found that people actively report using games to forget problems and manage their emotions (eg. Olson, 2010; Sarsenbayeva et al, 2020) and in a systematic review of 91 articles looking at gamer motivations, two of the key themes were playing to improve emotions and playing to escape from negative feelings (Cheah, Shimul & Phau, 2022), both of which relate heavily to MMT and emotional regulation. Similarly, Yee (2006) found that playing in order to relax was part of a greater overall motivation for play surrounding Escapism. Yee's scale of player motivation is the second most commonly used in games research (Hughes, Flockton & Cairns, 2023) and so it is reasonable to assume that playing to relax is a fairly established motivation in the literature. The most commonly used measure of motivation is the Player Experience of Needs Satisfaction (PENS; Ryan, Rigby and Przybylski, 2006) which also emphasises the idea that people select games to seek out gaming experiences which fulfil emotional needs. Though a little different to playing for emotional regulation purposes, the core concept of playing for emotional satisfaction is still reflected here.

Research into how gaming affects mood can tell us several things when it comes to considering the play experience of persistent low mood players. Firstly, gaming seems to have a positive influence on mood in a general population which may also transfer to a low mood population. However, these findings are somewhat mixed in terms of how effective games are at mood repair and whether the type of negative mood might impact this effectiveness. There is little research focused on low mood specifically, even in the context of a general population. Additionally, aspects which seem to influence how mood is boosted by

gameplay might not affect a persistent low mood population in the same way as a general population, and this warrants further investigation. For example, social play might have additional stressors which make it less likely to boost mood for people suffering from low mood (Cruwys et al, 2014) or the medium task demand which is both appealing and potentially beneficial to the average population could be too demanding for a low mood population, who often struggle with energy levels and being overwhelmed (Swindle, Kroenke & Braun, 2001). Therefore, further work is needed to better understand how mood repair and associated symptoms of persistent low mood might feed into the overall player experience of people with persistent low mood.

Secondly, MMT and associated research shows that gameplay can be both consciously and unconsciously used by players as a way of managing and alleviating negative emotions. Negative feelings are a key part of persistent low mood and so it is likely that players with persistent low mood will engage in mood management and emotional regulation strategies in their gameplay as a key part of their player experience. However, there is some early evidence to suggest that people who are experiencing sad or low moods might engage with mood management in a way which prolongs the negative mood (eg. Chen, Zhou & Bryant, 2007) although this is contentious (Dillman et al, 2008) and has not been examined in the context of gaming. There are few studies examining mood management with regards to gaming and low mood specifically, and so there also needs to be additional work in understanding how mood management might feature in player motivations for gaming. Gaming might be especially suited to altering moods compared to other media (Weber et al, 2020) and so this could be a useful tool in thinking about how to alleviate symptoms of persistent low mood outside of a professional, clinical context.

2.3.2 Gaming and Mood in People with Depression

Having looked at both mood and motivation in a general population with regards to gaming, now the review will discuss these factors in the context of depression. Persistent low mood is a key symptom of depression and therefore not only is it likely related to other depressive symptoms, but it itself can be represented by measures of depressive symptoms such as the Beck Depression Inventory (BDI; Beck, Steer & Brown, 1996). Therefore, studies which look at how gaming affects depressive symptoms as measured by these instruments also represent how gaming affects persistent low mood.

With this in mind, there are a few studies which suggest gaming might help improve the symptoms of depression. Similar to how casual games might help boost mood (eg. Pine et al, 2013), Russoniello, Fish and O'Brien (2013) found that playing a casual game for 30 minutes a few times a week resulted in a significant decrease in depressive symptoms after a month of play. Action games might reduce cognitive symptoms of depression such as rumination (Kühn et al, 2018) and, while this effect did not survive Bonferroni corrections, a systematic review found that games might help with cognitive aspects in a general population (Pallavicini, Ferrari & Mantovani, 2018) which could translate to improvements in cognitive symptoms in a depressed population, although the cognitive benefits of games are sometimes contested (Sala, Tatlidil & Gobet, 2018; Bediou et al, 2023). Exercise games also seem to have potential benefits for depressive symptoms (eg. Ruiz et al, 2022; Huang et al, 2022) though the effectiveness of exercise games compared to traditional exercise are hard to separate as exercise is generally beneficial for depressive symptoms (Xie, 2021). A systematic review conducted by Pallavicini, Pepe and Mantovani (2022) found that generally speaking, games were good at mitigating the symptoms of depression although there were some interactions with coping styles and problematic gaming, the latter of which will be covered later in this section in more detail. Overall, there are limited studies showing the benefits of gaming for symptoms of depression which is perhaps surprising given the potential for games to improve mood. Though these studies seem to be of a high quality (Pallavicini, Pepe and Mantovani, 2022) they are also mostly quantitative and focus only on limited game types, which reduces the generalisability and depth of knowledge in this area.

One area which may be able to shed more light on this is research into serious games. Serious games can be defined as games designed for purposes other than pure entertainment, such as to achieve health or educational goals (Laamarti, Eid & Saddik, 2014). Though they differ from commercial games, research into serious games may help identify some features of games which could be shared by commercial games and might help improve depressive symptoms. Serious games focusing on depression tend to be effective (Ruiz et al, 2022) though not necessarily superior to traditional therapy or other forms of treatment (Garrido et al, 2019; Townsend et al, 2022).

One key serious game designed to focus on depression is SPARX (Merry, Stasiak and Shepherd, 2012) which is a fantasy game for adolescents designed to deliver elements of Cognitive Behavioural Theory in a gameplay format. The player must first select symptoms of depression they experience (such as negative thoughts, low mood etc) and then they move

around a fantasy world, fighting creatures which represent negative thoughts associated with the symptoms they have selected. In this initial study, SPARX was found to be as effective as the usual treatment option. Some of the key components of SPARX which might support its effectiveness include support from counsellors or experts and the ability to customise the gaming experience through the personalisation of an avatar, narrative elements and the inclusion of cultural factors relevant to the player. The first element is not particularly relevant to commercial games (although guides in games are sometimes present) but the latter could mean that persistent low mood players may seek out games with greater customizability options or may benefit from games with these features. Low mood players may also prefer or benefit from games which seem relevant to them, either culturally or personally. Other studies into serious games for depression have found that people prefer a 'game-like feel' and that educational elements put off players (Garrido et al, 2019) which may further support the idea that commercial games have the potential to alleviate symptoms of depression. Commercial games may be able to provide some of the features of serious games without the educational element often included, making them more appealing to players.

Returning to commercial games, there have been a few studies which suggest games may have a negative impact on depressive symptoms. Mikuška and Vazsonyi (2018) conducted a longitudinal study of adolescents over 11 years and found that excessive gaming predicted increases in depressive symptoms However, results also showed that those who gamed excessively at age 16 often decreased their play habits by adulthood, suggesting the ability to self-regulate play. Most studies which focus on a negative impact on depressive symptoms (eg. Mikuška & Vazsonyi, 2018; Ostinelli et al, 2021; Teng et al, 2021) focus on excessive gamers as a sub-population, meaning there is a lack of studies which focus on the impact of standard play. Tortolero, Peskin and Baumler (2014) looked at daily videogame play in 5,147 adolescents and found that there was a small but significant association between high-violence videogame play for 2 or more hours per day and increased depressive symptoms, though no relationship between depressive symptoms and low-violence play or time spent playing generally. These findings suggest that it might be specific types of games which can negatively impact depressive symptoms, supporting the importance of exploring different facets of game experiences to help identify what features might result in this negative impact. The effect found for this study was small however and does not answer how other kinds of games might impact depressive symptoms.

Looking at other studies, evidence for how gaming might impact depressive symptoms remains mixed and unclear. A cross-sectional survey found increased depressive symptoms in women who game compared to those who did not (Weaver et al, 2009) although a similar survey done with a greater number of participants on an adolescent population found that the opposite was true, with female gamers reporting lower levels of depression compared to female non-gamers (Desai et al, 2010). In both surveys, no associations were found for depression with male gamers. Another cross-sectional survey looking at Islamic adolescents similarly found no relationship between gaming and depression (Allahverdipour et al, 2010) although this study did find that gamers had poorer mental health overall, with the depression correlation being non-significant. These individual cross-sectional studies are unable to explain much about the player experience of persistent low mood players or provide insight into what might be causing these mixed findings. To truly understand the effect games might be having on depressive symptoms, in-depth qualitative work is needed to understand how players report games affecting them.

Other methods have also found mixed results. Ballou et al (2024) examined naturalistic play data and found no association between time spent playing Nintendo Switch games and depressive symptoms in a sample of 703 adults and 140,000 hours of gameplay data. As this study used naturalistic play data and had a large amount of gameplay data, it is particularly valuable when considering whether gaming might impact depressive symptoms. Experimental studies looking at depressive symptoms have largely focused on violent games, with Ferguson and Rueda (2010) comparing the effects of different levels of violent gameplay and no gameplay on participants' depressive symptoms and aggression. There was no effect between group and depression scores post-play, although there was a relationship between trait aggression and depressive scores which suggested that more aggressive players remained more depressed. Prior experience with violent games was also measured and it was found that prior experience with violent games predicted lower depression scores, suggesting potential benefits with dealing with stress for these participants. These findings suggest there may be some element of individual player factors involved in the effect gaming can have on depressive symptoms. A later study also examining violent videogame exposure and depressive symptoms found depression decreased over time across 6 different gameplay conditions, regardless of the type of game played (Valadez & Ferguson, 2012). Additionally, time spent playing had no effect on depression. Both of these studies offer a mixed bag in terms of considering the potential effects of gameplay on depressive symptoms, violent or

otherwise. There is some additional evidence that gameplay might reduce depressive symptoms but also that it might not have an effect at all. Once again, unpacking the experience of play is crucial in understanding how games impact players, especially if there is a focus on what aspects of games have a positive or negative effect on low mood and associated symptoms.

Longitudinal research in this area has also been fairly limited in terms of quantity. Primack et al (2009) conducted a longitudinal study looking at how different types of media influenced the development of depression in 4,142 adolescents over 7 years. No adolescents were depressed at baseline. After 7 years, 308 adolescents were classified as depressed but there was no association found between the development of depressive symptoms and exposure to media, including computer games. Few other studies have attempted to look at the impact of media in this way. Alongside qualitative methods, longitudinal studies would allow for better understanding of how games might affect depressive symptoms longer term.

One factor which may confound the relationship between depressive symptoms and gaming is problematic gaming. Problematic gaming can be defined as using videogames in an unhealthy, addictive or otherwise negative way (Griffiths et al, 2015). Internet Gaming Disorder (IGD) is a mental health condition characterised by aspects of problematic gaming, such as 'a preoccupation with gaming', 'a loss of interest in other activities' and 'the use of gaming to relieve negative moods such as guilt or hopelessness' (American Psychiatric Association, 2022). Guilt and hopelessness are both traits often associated with depression (Luck & Luck-Sikorsi, 2021; Healy & Williams, 1988) and so it is not unreasonable to assume that IGD may be related to depressive symptoms and therefore low mood. This potential association has been reasonably well-explored in the literature. Düll, Müller and Steins-Loeber (2024) conducted a systematic review of 48 longitudinal studies looking at gaming disorder symptoms and found that depression was the most commonly studied aspect, with 21 studies focusing on it. Of those 21 studies, 5 found that there was a reciprocal relationship between gaming disorder symptoms and depression, 6 found gaming disorder symptoms predicted depression and 7 found no relationship between depression and gaming disorder. Other attempts to model the relationship between depression and pathological gaming have suggested a reciprocal relationship may be best suited (Rapinda et al, 2021) although depression may also precede pathological gaming.

There may be a range of individual and situational factors which influence the relationship between problematic gaming and depression. One possible finding seems to be that time spent playing might not be associated with depressive symptoms, despite the potential relationship with problematic gaming. A study examining videogame addiction in Norwegian adolescents at two time points found no association between time spent gaming and any negative outcomes, including depressive symptoms (Brunborg, Mentzoni & Froyland, 2014). As mentioned, Ballou et al (2024) also found no association between time spent playing and depressive symptoms. There is also evidence that game types might be associated with depression and addictive play. Gema et al (2024) did a latent profile analysis of 1186 gamers and found three distinct profile styles, with one profile being characterised by greater depressive symptoms and another by higher risk of IGD symptoms, greater gaming severity and also depressive symptoms. The depressive symptoms group were more likely to play shooters and less likely to play adventure games or RPGs, whilst the IGD risk group had no game types associated with them. It is unclear how meaningful game type is here, although as different types of game offer different play experiences, it is possible that some are more appealing to players who demonstrate depressive or addictive traits than others. The preference for shooters could link to the mood-boosting effect of violent games discussed earlier (Fleming & Wood, 2001; Lang et al, 2013) although there is simply not enough research on how different types of games might affect players, low mood or otherwise.

Aggression may also be a factor impacting the relationship between problematic gaming and depression. Krossbakken et al (2018) examined antecedents and consequences of addictive play as measured by pathological gaming, and found that both depression and loneliness had a reciprocal relationship with addictive play, echoing some previous findings discussed. Physical aggression was identified as an antecedent of pathological gaming while anxiety was identified as a consequence. This study also compared factors across three types of player: engaged, problem and addicted. Depression was identified as a consequence and physical aggression as an antecedent for all three types of players. The potential relationship between aggression and problematic gaming is beyond the scope of this review but it is worth mentioning as it highlights the complex relationship between individual factors, consequences of problematic gaming and types of gaming.

Returning to the play experience of gamers with persistent low mood, research around how gaming affects depressive symptoms is a mixed bag. Some evidence suggests that gaming might help improve the symptoms of depression, although these are often

focused on the effects of a few game types and experiences. Serious games also show potential areas of promise or appeal for depressed players, but these have not been studied much in relation to commercial games. Other work suggests gaming may have a negative impact on depressive symptoms which may be related to gender, but more evidence leans towards there being no relationship at all. There is little work asking players how they think gaming affects their depressive symptoms and this could be valuable in unpacking this relationship further, as highlighted by Pallavicini, Pepe and Mantovani (2022).

Additionally, it seems likely that there is a relationship between problematic gaming and depression, although the nature of this relationship is not fully clear. This is not particularly surprising given depression and mood disorders have comorbidity with other addictive disorders (Delgadillo et al, 2013; Saha et al, 2022) and so it might be expected that persistent low mood players may report traits of problematic gaming in their play, such as playing excessively or to avoid negative feelings. However, as we have seen with the earlier literature about mood management and escapism, this might not always be a negative thing and time spent playing alone is not a good predictor of negative outcomes. There is still not enough known about how gaming interacts with depression and associated symptoms like low mood, and the lack of qualitative research means that the player perspective has not been fully explored here. The potential impact of different game types is an intriguing idea but existing work often focuses on one or a limited number of game types, and does not explore what may or may not be unique about those gaming experiences. Asking players about those experiences can help identify whether this is a good avenue of research to pursue or whether other factors of gaming might be more worthy of additional focus in future work.

2.3.3 Motivation in People with Depression

The final component not yet discussed is how motivation might be conceptualised in persistent low mood. In this review, motivation in the general population has been discussed exclusively through the lens of gaming but there exists almost no work on what motivates gaming in people with persistent low mood or depressive symptoms. Therefore, to explore how motivation might differ in people with persistent low mood, a wider scope must be considered. This section will be kept brief but it is worth touching on given how motivation for play is a key part of the player experience.

Looking at how depression might impact motivation in terms of leisure hobbies, the first crucial component to consider is the element of energy. Energy has been highlighted as a key factor which impacts engagement with work (Swindle et al, 2001) and hobbies (Kornfield et al, 2020) for people with depression. Kornfield et al (2020) investigated how depressive symptoms fluctuate over time with the intention of creating a digital tool aimed to help with symptom. Qualitative interviews were used to investigate changes in symptoms and it was found that energy fluctuation was the key change reported by participants. Fluctuations in energy were important factors in determining how interested participants were in hobbies and also how able they felt to engage with hobbies. In particular, escapist hobbies were highlighted as being particularly appealing during times of low energy. This finding is particularly relevant when considering motivations for gameplay in a persistent low mood population as games are often considered to be escapist (eg. Yee, 2006; Kosa & Uysal, 2020). Therefore, it seems likely that escapism might represent a key motivation for a persistent low mood player.

The role of energy has been highlighted by other studies. Swindle et al (2001) also found low energy to be the most commonly reported symptom of depression, and low energy was associated with poorer work and reduced social functioning. The component of social functioning is also an important one to consider in the context of hobbies and gaming. Playing for social reasons is a common motivation in the general population (Yee, 2006; Ryan, Rigby and Przybylski, 2006) but this may be more complex when considering persistent low mood. Social belonging may act as a buffer against depressive symptoms (Sargent et al, 2002; Santini et al, 2015) but people with depression may also be more sensitive to social rejection (Steger & Kashdan, 2009) and be less likely to feel a sense of belonging (Watson et al, 2020). Some studies have found that college students with depression are more likely to seek out solitary leisure activities if they have stronger depressive symptoms (Blanco & Barnett, 2014) as well as being less likely to engage with leisure activities at all. Taken together, these findings paint a complex picture of how social activity might interact with persistent low mood. Social gaming experiences may be beneficial to low mood players and something that they actively seek out due to these benefits, but they could also have negative interactions with low energy and a fear of social rejection. It would therefore be useful to unpack the impact of social play on persistent low mood players further to see whether it is a beneficial or a detrimental one, and whether this has any influence on motivations for play.

Another key component is the role of reward. Achievement is a common motivation in the general population (Yee, 2006; Ryan, Rigby and Przybylski, 2006) and may be associated with positive effects on mood in gaming (Rieger et al, 2014; Behnke et al, 2021) but this might not apply to a persistent low mood population. There is some evidence that depressive symptoms affect someone's ability to judge and value rewards, particularly with regards to leisure activities. Blanco and Barnett (2014) found college students had diminished enjoyment of leisure activities and valued the rewards gained from those activities less. Similar patterns have been found by Grahek et al (2019) who suggested the diminished valuing of rewards found in people with depression might be due to cognitive perceptions of both rewards and the efforts needed to gain those rewards. Finally, Watson et al (2020) also found through qualitative interviews that adolescents with depression gained less joy from leisure activities and so were less likely to see those activities as rewarding. These findings raise questions about to what extent games might be perceived as rewarding by persistent low mood players, and whether this impacts their motivations for playing games.

In summary, there are several differences in how motivations for leisure activities function in populations with depression. As the depressive symptoms highlighted by these studies are also associated with persistent low mood, it is reasonable to assume these differences in motivation might also impact a persistent low mood population. In the context of gaming specifically, it seems possible that players with persistent low mood might report or value different motivations compared to those of the general population. However, there is little work which focuses on motivation in the context of gaming and persistent low mood. Qualitative methods have proven useful when it comes to exploring motivation in depression more widely (Watson et al, 2020; Kornfield et al, 2020) and so it follows that using these methods to explore gaming motivations in a persistent low mood population would also prove fruitful. Motivation is an important part of the player experience and knowing more about motivation in a persistent low mood population would greatly help inform how games might impact low mood and other related aspects.

2.4 Summary

Overall, this review has aimed to highlight what is currently known about how games impact mood in a general population, as well as what drives a general population to play games. The impact of games on a persistent low mood population has also been explored through a focus on depressive symptoms. While work regarding general populations has been

wide and varied, work focusing on low mood is extremely limited. This thesis therefore aims to explore the following research questions:

RQ1. How do games impact low mood?

Work outlined in this review suggests that games might have a positive effect on certain negative moods, but little is known about low mood specifically. Studies 1, 2 and 3 will all attempt to explore this question further

RQ2. Why does someone with persistent low mood play games?

This review has explored some of the reasons for play that apply to the general population. People report playing games to regulate and manage emotions, to feel a sense of achievement and for social purposes, among others. However, none of these motivations have been explored in the context of persistent low mood and games. Studies 2 and 3 aim to address this research question.

RQ3. What effect do games have on people with persistent low mood?

Considering the background literature, there is some evidence that games have a positive impact on the general population. In terms of persistent low mood however, research into gaming and depression has found mixed evidence. Some studies suggest a positive effect, others a negative or no effect but the key gaps here are that there are few studies which explore the potential effects of gaming in-depth. The use of qualitative methods would be particularly beneficial here to unpack what elements of gaming might be positive and which ones might be negative for a persistent low mood population. Studies 2 and 3 focus on this research question.

RQ4. How do people with persistent low mood feel about their gaming?

Some of the work outlined in this review around motivations for leisure activities suggests that people with persistent low mood might devalue leisure activities compared to a general population. There may be concerns or limitations around how much energy leisure activities require, or the perceived rewards gained from those activities. Again, not much is known about this in relation to gaming. Qualitative work has proved useful in unpacking attitudes around leisure activities more broadly and so seems appropriate for exploring attitudes towards gaming. This research question is primarily answered in Study 2.

3. The Impact of Gaming on Mood During the Covid-19 Pandemic

3.1 Introduction

The beginning of this thesis work coincided with the Covid-19 pandemic, an unforeseeable event. During this time, the opportunity arose to join a joint research project focusing on the potential impacts of Covid-19 on gaming habits through drawing on theories of wellbeing and motivation. The core concept behind the project was that people were likely to use gaming during social isolation to improve their mood and fulfill needs, as predicted by Self-Determination Theory (Ryan & Deci, 2002; Ryan & Deci, 2022). A mixed methods survey design was chosen in order to accommodate both halves of the project, with a qualitative approach to examine mood and a mixed methods to look at needs satisfaction and frustration. The focus of the current chapter will be on the qualitative mood half of the project as this is the section relevant to the overall thesis research questions.

The goal of the present study was to examine what kinds of moods/feelings were experienced during the Covid-19 Pandemic and how gaming might impact these feelings. This was intended to be an exploratory start to this body of work, allowing for the examination of low mood (helping to answer RQ1 'How do games impact low mood?') but also gaining greater insight into moods and gaming more generally. In the wider context of gaming and wellbeing, it also seemed that knowledge would be gained which might inform the design of future studies. Therefore, the goal of the first study presented in this thesis represents an opportunistic approach to examine a period of presumed low mood and low wellbeing in a general population during an unusual life event.

The research questions were as follows:

1. What kinds of feelings and/or moods do people report experiencing during lockdown?
2. What kinds of feelings and/or moods do people report experiencing as a result of gaming during lockdown?
3. Do games have a positive impact on how people are feeling during lockdown?

These questions were chosen to address the overall thesis RQ1 'How do games impact low mood?'. The first question was selected to identify how people were generally feeling during lockdown and to better establish if they were in a low mood or not. The second question was selected to determine what kinds of moods might be experienced during or associated with gameplay. The final question was selected to provide an overall feel for whether games seemed to improve or negatively impact mood during lockdown. Together, all three questions would hopefully provide an overview of how games might impact mood during this time.

The overall project was completed as a collaboration between four researchers but the work presented in this chapter thesis is my work. With the exception of the survey design which was a collaborative effort, all analyses were completed by me with only supervisory input from other researchers involved. Other researchers of the group conducted additional qualitative and quantitative analyses using different approaches, which will not be discussed further here as to focus on my individual contribution and interests. These findings can be found in Ballou et al (2022).

It is worth mentioning that initially this study had a wider range of research questions which also looked at attitudes towards gaming during lockdown, changes in gaming habits and what aspects of games were appealing to gamers during this time. This analysis was initially conducted in 2020 (also entirely by me) but the research questions were refined later to better reflect the overall questions of the thesis as the work became more focused on low mood specifically. A second analysis was done in 2024 with the new research questions listed above, and that is the work described in this chapter. Though enough information on moods was provided by participants to make this decision feasible, it is mentioned here because the study design and limitations of the work are impacted by this choice.

When this work was designed and carried out, there existed almost no work on Covid-19 and gaming habits. However, since the start of the pandemic there have been numerous studies looking at Covid-19 and gaming specifically. These studies will be presented as part of the discussion section of this chapter as they did not form part of the rationale behind the current study but offer insight into the interpretation of results.

3.2 Methodology

3.2.1 Participants and Recruitment

Ethical approval was gained through Queen Mary University of London on April 28th 2020 (QMERC2020/26). Participants were recruited through a range of online adverts using social media websites such as Facebook, Twitter and Discord. Participants were required to be a minimum of 18 years old, have played at least 1 hour of games in the last week and be proficient in English. For this study 'games' included all kinds of games, not just digital. Types of games will be explored further in the results section.

There were a total of 436 responses to the survey which, after data cleaning and removal of incomplete responses, resulted in 285 responses in total. Responses were removed if all the questions had not been answered or if fake answers had been given to the qualitative questions, such as writing the same word for every answer.

The average age of respondents was 31.63 and the range was 18-75 years. There were roughly equal numbers of male (N=130) and female participants (N=125), and a smaller number of non-binary (N=25) participants and people who preferred not to say (N=5).

Participants were asked 'what country are you currently living in?' as an open textbox question. The majority of participants reported living in the UK (N=114), England (N=52) or the USA (N=46) but there were 45 different countries of residence reported in total (see **Table A.1** in the Appendices).

As quarantine was not a universal concept across different countries at the time, additional information was gathered about the individual's perception of their experience of quarantine. Participants were asked 'In the last week, my routine and environment have been significantly different than before the COVID-19 pandemic' with a 5-point Likert scale response ranging from Strongly Disagree (1) to Strongly Agree (5). The majority of participants said they strongly agreed that both their routine and environment had been significantly different (N=136) with the full spread being seen below in **Figure 1.1**.
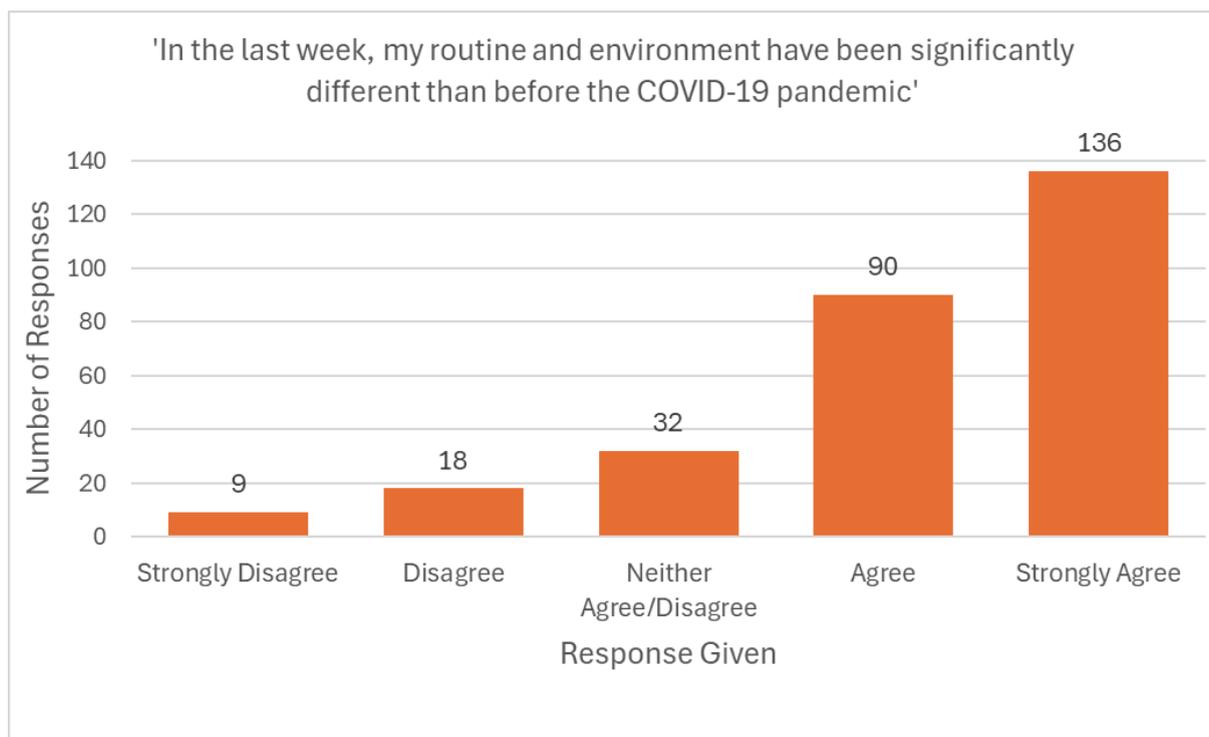
Figure 1.1: Likert responses to 'In the last week, my routine and environment have been significantly different than before the COVID-19 pandemic'

Of the participants who disagreed that their routine was significantly different (N=27), there were no clear patterns in terms of participant age, gender or country of residence. In response to a question about changes in gaming activity, one participant mentioned self-isolating with depression before the pandemic as the reason for there not being a change in habits whilst another participant talked about living in the rural countryside as an explanation for already being isolated. Another participant was fired before the pandemic began and so had already been at home most of the time. Some of these participants also reported a change in playing more socially as other people became more available to play with. Aside from the factors mentioned here, these responses did not differ noticeably from the responses across the whole dataset.

Information about hours of play was also collected. Participants were asked 'In the past week, roughly how many hours did you spend playing games (such as board games, card games, video games, role-playing games)?'. There was quite a wide spread of hours, with the smallest group being 1-2 hours a week and the largest being 7-10 hours a week (see **Figure 1.2**).

Figure 1.2: Hours spent gaming in the last week as reported by participants

As part of the survey, participants were asked what type of games they had played in the last week. The majority of games reported were video games (N=502/771) with the full spread reported in **Table 1.1.**

Game Type	Count
Video game	502
Tabletop role-playing game	87
Board game	82
Other	52
Card game	43
Live action role-play	5

Table 1.1: Number of each type of game played by participants in the last week from most common to least

In total, 456 different games were mentioned in response to the question 'List up to 3 games you have been playing this week', not combining games from the same series. If the game listed was ambiguous as to what version the participant was talking about, then it was coded as a separate game (ie. 'Animal Crossing' and 'Animal Crossing: New Horizons' would be counted separately).

The vast majority of games were played by either one (N=357) or two participants (n=50). The most played games were Dungeons & Dragons (N=54), Animal Crossing: New Horizons (N=28), Animal Crossing (N=21) and Minecraft (N=20). Other games played by 5 participants or more can be seen in **Table 1.2.**

Game Title	Count
Dungeons & Dragons	54
Animal Crossing New Horizons	28
Animal Crossing	21
Minecraft	20
Sims 4	11
Assassin's Creed Odyssey	9
Stardew Valley	9
Final Fantasy 7	7
Rocket League	7
CS:Go	5
Jackbox	5
Solitaire	5
Team Fortress 2	5
Uno	5

Table 1.2: The top played games in the last week as reported by participants (N≥5)

3.2.2 Survey Design and Procedure

The survey was distributed virtually through a range of social media platforms such as Twitter, Reddit, Facebook and Slack channels, through a Qualtrics link posted alongside the digital adverts. After reading an information and consent sheet, participants were invited to continue with the survey if they fulfilled the criteria and agreed. As compensation, participants were offered the chance to win one of six £20 Amazon vouchers for taking part. The survey was estimated to take around 20-30 minutes to complete, though participants took an average of 64.83 minutes (range 5.03-2771.85 minutes). There was no timeout feature on the survey so it is possible participants completed it whilst doing other tasks.

After the initial demographic questions, there were two halves to the survey. The second half consisted of several quantitative measures, including the Basic Psychological Need Satisfaction and Frustration Scale (Chen et al, 2015) and the Ubisoft Perceived Experience Questionnaire (Azadvar & Canossa, 2018). As these measures aimed to look at needs satisfaction rather than mood and addressed different research questions than the ones listed in this chapter, responses will not be discussed further in this chapter but can be found reported in Ballou et al (2022).

The first half of the survey was qualitative and is the main focus of this chapter. The first few questions were focused on identifying what games were being played by participants. Initially, participants were asked:

1. List up to 3 games you have been actively playing in the last week – again, these can be any kind of game: video game, board game, card game, role-playing game, etc. You must enter at least one game to proceed with the survey.

   Then for each of the games listed, participants were asked:

   1. What kind of game is it?
      Video game, Board game, Card game, Tabletop role-playing game, Live action role-play, Other (please state)
   2. Had you played [GAME] (or a game in the same series) before social isolation measures were introduced?
   3. What made [GAME] appealing to you?

After this, participants were asked several open-ended text questions about their gaming habits during isolation:

   1. How (if at all) do you think your gaming activities have changed since social isolation measures were introduced? What prompted or motivated these changes? Please describe in as much detail as you can.
   2. How do you think gaming has affected your mood over the last week, if at all? Why do you think this may be?
   3. Has your attitude towards gaming changed since social isolation measures were introduced? If so, how and why do you think this is?

After completion, participants were presented with a debrief sheet, some sources of help if they were feeling distressed and instructions on how to withdraw their data if they wished.

Data collection ran from the 4th May 2020 to the 18th May 2020.

3.2.3 Analysis

Due to the categoric nature of the research questions, the form of analysis chosen was a qualitative content analysis using Mayring (2004). This approach focuses on the formation of categories using a bottom-up technique, whereby codes are developed from the dataset and the coding process is repeated iteratively to reach the final codes. This approach seemed appropriate given the focus was on identifying moods and categorising them into negative and positive ones. Initially, the idea of two broad categories was conceived and used to focus the coding process: Moods experienced during gaming and Moods experienced outside of gaming. These categories are based directly on the first two research questions and would be used to define the selection criteria for a coding unit.

The first step before coding was to define what constitutes a mood or feeling in the context of this work. Only one question in the survey asked directly about mood, which was 'How do you think gaming has affected your mood over the last week, if at all? Why do you think this may be?'. However, participants mentioned many different moods and feelings prompted by gaming throughout other responses, such as when it came to the appeal of a game. The term 'mood' was not defined for participants and so an open definition will be used here in order to best capture the data as, in everyday language, moods, emotions and other aspects are often conflated (Prescott-Couch, 2005) or do not always represent the academic definitions of the word (Beedie, Terry & Lane, 2005). This lack of definition given for participants is also why a bottom-up approach seemed more suitable to better capture the data and allow for the expression of moods in the participants' own words.

With this in mind, the terms 'mood' and 'feeling' will be used interchangeably throughout this chapter and are defined broadly as 'an emotion or an affective state which can characterize a mood or temperament' (adapted from Fox et al, 2018). This definition was chosen as a starting point to include some responses participants made to the question about mood which might otherwise be excluded by traditional psychological definitions of mood, such as 'It has kept my mind stimulated in a way that isn't work.' (P66931) which was given as an answer to the question about mood and gaming. While 'cognitively stimulated' isn't a mood in the traditional sense, it is a sensation experienced by the participant with an associated emotional impact and meaning to them. There are also cognitive elements included in some definitions of mood (Beedie, Terry & Lane, 2005). Rather than potentially miss out on these aspects, they were coded during the first pass and reviewed in later passes.

There were some other criteria when it came to what would or wouldn't be included as a code. Due to the research questions focusing on lockdown specifically, a feeling would

only be coded if it was one experienced during this time. Some participants talked about how they 'usually' play games and in these cases, moods mentioned would not count unless they also clearly applied to the present. If a response was deemed too ambiguous to decipher, then it would not be coded either. Codes were also not restricted by participant but rather by section, meaning that one response could be labelled with the same code multiple times provided that the sections were distinct enough. For example, two consecutive sentences mentioning 'Anxiety' would only be coded as one chunk whereas two sentences divided by another statement would be coded twice.

There were three passes of coding. The coding process was as follows:

1. For the first pass, responses to all qualitative questions were analysed. Coding was initially conservative for the questions which did not directly ask about mood, using only the definition of 'an emotion or an affective state which can characterize a mood or temperament' (adapted from Fox et al, 2018) to code units. For the question directly about mood, a broader definition was used and anything which the participant listed as a state of being was coded.
Codes were organised into the two categories mentioned above: Moods experienced during gaming and Moods experienced outside of gaming. Codes were also split into 'Positive' and 'Negative' moods experienced during gaming. The same was not done for moods outside of gaming as only a single positive mood code was mentioned

2. After the whole data set had been coded, codes went through an initial review process. Most codes were not merged at this stage but some were reorganised into subcodes (such as Distraction becoming a subcode of Escapism)

3. A second pass was conducted on the data set. This time, any codes which had emerged from the first pass could be applied to questions outside of the one focused specifically on mood. The requirement for this was that there was some kind of implied emotional component to it. For example, it was not enough to say a game was 'strategic' for the 'cognitively stimulated' code to be applied. There had to be some kind of focus on it being a state experienced by the participant

4. After this second pass was complete, another reorganisation and restructuring of codes took place. At this stage, several codes were merged into other codes if they only had one or two uses. A complete list of merged codes can be seen below in **Table 1.3**. An initial codebook was also produced at this stage with working definitions for each code.
Additionally, to better address the third research question, four existing codes were separated out into a third category at this stage. These four codes were 'Gaming improved my mood', 'Gaming made mood worse', 'Gaming did not affect mood' and 'Not sure how gaming affects mood'. These four codes were separated out due to overlapping with other codes and also to offer a general representation of how the mood question was answered

5. After this, a third and final pass was conducted to check that the merged codes still represented the data and that nothing had been missed from the first two passes
6. Once the third pass was complete, the organisation of codes was finalised. This structure can be seen in **Figure 1.3**

Once coding was complete, the codebook was finalised. As suggested by Mayring (2004), a second coder was brought in to check interrater reliability. This coder was a fellow PhD student who was experienced in qualitative coding. They were provided with roughly 10% of the dataset and asked to do three passes of coding. After these three passes, a meeting was held to discuss any discrepancies after which, only a single code was disagreed upon. The segment disagreed upon was 'It is new, I am testing it. Card game are chill and does not require both hand, perfect for a lonely breakfast.' P92830, where the primary researcher thought the label 'Isolated/lonely' should be applied and the second coder thought there was not enough context. The label was applied and the disagreement was noted. In total, 191 codes were agreed upon out of 192, making for an agreement percentage of 99.48%.

Original Code	Merged Into
Moods Outside of Gaming -> Bleak	Low Mood
Moods Outside of Gaming -> At a loose end	Agitated/Restless
Moods Outside of Gaming -> Cooped up	Agitated/Restless
Moods During Gaming -> Less isolated	Social Connection
Moods During Gaming -> Helps to stop dwelling on things	Distracted
Moods During Gaming -> Manageable goals	Drive to improve, Cognitively stimulated
Moods During Gaming -> Laziness	Guilt
Moods During Gaming -> Invested	Excitement

Moods During Gaming -> Clarity	Recharged
Moods During Gaming -> Pass the time	Less bored
Moods During Gaming -> Regret	Guilt
Moods During Gaming -> Done	Dissatisfaction

Table 1.3: All codes removed during the second pass of coding and the other codes they were merged into

3.3 Results

As an overview, the coding process resulted in three categories of codes: 'Moods experienced during gaming', 'Moods experienced outside of gaming' and 'Overall effect of gaming on mood'. Additionally, 'Moods experienced during gaming' had two subcategories: 'Positive moods' and 'Negative moods'. These categories will now be presented in the context of the research questions.

3.3.1 What kinds of feelings and/or moods do people report experiencing during lockdown?

In total, there were 14 different feelings and 4 subcategories of feelings reported during lockdown outside of gaming (see **Table 1.4)**. The most common feelings were Stressed, Anxious, Bored, Isolated/Lonely, Low Mood and Tired (N>10). Only two participants mentioned feeling positive outside of gaming with all other moods mentioned having negative connotations.

Moods Outside of Gaming (Codes & *Subcodes*)	Definition	Count
Stressed	Mental pressure or tension	35
Overwhelmed	As above but with an added element of it feeling intense and unmanageable	3
Anxious	Feeling of unease, worry or fear. Does not have to be clinical but may imply it	30

Unsafe	Feeling worried about being exposed to the virus	8
Bored	Loss of interest in something or lack of things to do	22
Monotony	As above but with an added intensity or lack of change	11
Isolated/Lonely	Feeling emotionally or mentally distant from people	19
Low mood	Mentions of feeling sad, low or otherwise 'bad' in an unspecified way	13
Depression	As above but uses the word 'depression' specifically	8
Tired	Feeling tired, exhausted or fatigued	10
Frustrated	Milder than anger. Frustration, grumpiness	9
Low energy	Lack of mental, physical or social energy to engage with tasks	6
Low motivation	Mentions a lack of motivation or things feeling futile/pointless	6
Agitated/Restless	Feeling restless, on edge or antsy	4
Angry	Rage	2
Neutral	Mood is mentioned as being 'normal' or 'even'	2
Positive	Good moods such as happiness, joy or other general positive terms	2
Low focus	Difficulties with concentrating	1

Table 1.4: All moods experienced outside of gaming, organised from most frequent to least frequent

Stressed

The most common feeling experienced during lockdown was *Stressed*. Several participants talked about 'the stress of current times' (P11946) or how 'the pandemic has everyone stressed' (P24414). Most participants were brief or general about how the pandemic was stressing them out, but some mentioned how either a lack of work or changes to work were related to the stress:

'Gaming greatly helps to alleviate stress from work and anxiety induced by uncertainty caused by the pandemic' P51727

'I am also recently unemployed, so [gaming] gives me something to do and helps me forget the stress of my current situation.' P37108

There was the additional subcode of *Overwhelmed* which captured a particularly intense form of stress associated with feeling unable to cope.

Anxious

Several participants reported experiencing anxiety during lockdown. Factors influencing this seemed to be physical isolation ('This helps both my anxiety, which is chronic, but made worse by being trapped in so much' P17310) and uncertainty ('anxiety induced by uncertainty caused by the pandemic' P51727). Some participants mentioned already having anxiety prior to the pandemic whilst others described it as situation-specific. Fear of getting ill was sometimes mentioned alongside this anxiety (captured by the subcode *Unsafe*), either in relation to themselves or people they cared about who were vulnerable:

'I am very nervous and I feel very unsafe because a lot of people in my neighbour don't wear masks, don't respect social distancing etc' P90940

Boredom and Monotony

Boredom seemed to be a key motivator for participants to game during the pandemic and there was not much detail given as to why participants were bored, except for the inference that being physically isolated at home and unable to engage with many activities would naturally cause boredom. Several participants mentioned *Monotony* in the sense of 'the days are merging together nowadays because they're all the same' (P37108), something which will be explored further in terms of gaming impacting boredom and monotony.

Isolated/Lonely

A few participants mentioned having a need 'to reach out to other people to stay mentally sound' (P11845) and described lockdown as 'a time of cold isolation' (P25771). Even participants with an active social life through gaming/online interaction could report feeling isolated:

'It's allowed me to keep in contact with friends more often, but I wonder if the connections and conversations I have with them are shallower. [...] I feel like I haven't really connected to anyone in a long time…' P42517.

Related to this, two participants mentioned specifically feeling 'cooped up' or 'stir crazy' from being physically trapped inside. This feeling of being trapped was sometimes linked to a desire to explore the world through gaming, something which will be discussed along with the *Freedom* code when looking at Moods experienced during gaming.

Low Mood

In terms of general low mood, several participants mentioned experiencing low mood to different degrees. This could range from general low mood ('as I have felt pretty low some

days', P36475) to specific mentions of depression ('I have returned to that mindset lately and have noticed most of my major depression symptoms have returned', P19534). A few participants mentioned how they felt their depressive symptoms had gotten worse since lockdown started.

As low mood is the focus of the thesis, it is worth mentioning that other associated symptoms of low mood were also reported by participants. These included low motivation ('my mood has taken a bit of a hit leading me to have low motivation', P65511), low energy ('I do have very little mental energy due to existing mental illnesses probably being exacerbated by the current circumstances', P17627) and some elements of monotony/bleakness ('every day seems like the last, and there is no end in sight', P43621). One participant mentioned feeling 'worthless':

'When I am gaming I can focus on just the experience and objectives. I can zone out reality, which somehow also removes almost all my major depression symptoms. Thoughts of worthlessness? I am freaking gladiator on a unicorn, bring it on!' P19534.

The next section will address how gaming impacted these elements. Overall though, it seems that the assumption made that low mood would be something people experienced during lockdown is supported by its relevant prevalence compared to other negative mood states in the data set, even if that prevalence is still low in the context of the number of participants.

3.3.2 Do games have a positive impact on how people are feeling during lockdown?

Before discussing the second research question which dives into the kinds of positive and negative moods experienced during gameplay, the third research question will be addressed here to provide a general sense of the data.

Feelings experienced during gaming were split into two categories: positive and negative. In total, there were 953 instances of positive feelings reported from gaming and 111 instances of negative feelings reported from gaming.

Additionally, there were four codes which were separated out into a third category. These four codes were created to capture general responses to the question 'How do you think gaming has affected your mood over the last week, if at all? Why do you think this may be?' as some participants stated 'It has improved my mood' or similar, with no elaboration. The four codes were: *Gaming has improved mood, No effect of gaming on mood, Gaming has made mood worse* and *Not sure how gaming affects mood*. These four codes with their respective counts can be seen in **Table 1.5.**

Additional Codes	Count

Gaming has improved mood	136
No effect of gaming on mood	33
Gaming has made mood worse	7
Not sure how gaming affects mood	1

Table 1.5: A table showing the counts of the four codes created to gain a general sense of how gaming affected mood

For the code which states gaming had no effect on mood, several participants stated this explicitly but then went on to list an effect gaming had anyway. The phrasing of this often suggested they were considering the overall effect was 'balanced' rather than that gaming had no effect at all. For example:

'don't really think it has. I suppose I feel accomplished when it goes well, and frustrated when it goes badly, but I don't think it affects my overall mood much.' P94299.

'I don't think gaming has affected my baseline mood at all. I'm still anxious about the pandemic at baseline. But gaming has provided a welcome escape for a couple hours at a time.' P76868.

In summary, there was a greater prevalence of positive moods experienced during gaming compared to negative ones. There was also a higher number of participants who explicitly stated gaming improved their mood compared to those who said it has no effect or makes it worse. Both of these factors suggest that overall, gaming had a positive effect on people's mood during lockdown.

3.3.3 What kinds of feelings and/or moods do people report experiencing as a result of gaming during lockdown?

3.3.3.1 Positive Feelings

As reported above, feelings experienced during gaming were largely positive on the whole (N=953). A full list of positive feelings can be seen in **Table 1.6**. Compared to negative feelings, positive feelings seem to encompass a wider range of experiences outside traditional categories of mood. There was some debate as to whether to categorise these as aspects which facilitate positive mood but ultimately it was decided these aspects still represent states of feeling as reported by participants and so should be interpreted with that lens.

When accounting for subcodes, the most common positive feelings reported were A Sense of Escapism (N=189), Fun (N=166), Social Connection (N=156), Relaxation (N=134) and A Sense of Achievement (N=59). These codes will be discussed further below, along with Sense of Structure (N=30) as this code seems to relate to feelings/desires prompted by the pandemic and so seems worth focusing on further.

Positive Moods Experienced During Gaming (Codes & *Subcodes*)	Definition	Count
Fun	Game is described as fun or enjoyable in a general sense	166
Socially connected	Sense of closeness with other people, communities or otherwise warmth that comes from a social experience	150
Connections to NPC	As above but with virtual characters rather than real people	6
Relaxing	Reduction of stress or gaming described as calming, relaxing	134
Escapism	A general sense of escapism, either from life or to the game world	63
Absorbed	As above but with an added element of feeling absorbed, immersed or 'lost' in the game	28
Distracted	Gaming offering relief or distraction from negative thoughts or otherwise unspecified events	85
A Sense of Freedom	Sense of freedom, whether of choice or being able to explore	13
Achievement	Sense of pride or success at playing a game well	43
Challenged	Sense of finding a game difficult in a compelling way	12
Drive to improve	Urge of wanting to get better at a game	4

Cognitively stimulated	Sense of mental engagement, stimulation or focus	36
Less bored	Reduction in boredom	34
Sense of structure	Gaming providing a structure to someone's day or routine	25
Sense of normality	In the disruption of lockdown, gaming remains a constant which provides reassurance	5
Happy	Positive joyful mood	19
Comfort	A sense of comfort, reassurance or otherwise warmth	17
Nostalgic	Often uses the word 'nostalgia' explicitly. A sense of fondness or reminiscence prompted by a game	19
Funny	Sense of joy based around humour	15
Anticipation	Looking forward to gaming	14
Creative	Feeling or being creative	13
Catharsis	The releasing or lessening of other (extreme?) emotions through gaming, a form of relief	8
Excitement	Sense of enthusiasm and eagerness from play	8
Novelty	Gaming offering something new positively	8
Rewarded	Gaming as a reward after a negative experience, or being rewarding in its own right	8
Recharged	Gaming being refreshing or energising	7
Agency	A feeling of control from gaming	6
Less guilt	Reduction in guilt or sense that gaming is more acceptable during isolation	5
Mindless	Positive sense of low effort required to play	2

Table 1.6: A table showing all of the positive feelings experienced during gameplay, organised by most frequent to least frequent

A Sense of Escapism

A sense of 'escape' was the most commonly reported positive feeling that arose from gaming (N=189). Though not traditionally a 'mood', it was a common experience reported by participants and appeared to be a state they felt and found emotionally beneficial. It therefore fit the criteria for coding and will be considered a 'feeling' in the context of this work. Within this code, there were three subcodes: *Absorbed* (N=28), *Distracted* (N=85) and *A Sense of Freedom* (N=13).

A Sense of Escapism as a code refers primarily to a sense of 'an escape from reality' (P14144) and was linked to aspects of the pandemic such as isolation ('exploring fantasy worlds and roleplaying as a powerful character in the Witcher with enriched relationships and storylines... the escapism definitely helps!', P57767), feeling physically trapped ('a good escape when stuck indoors', P37108) and even death ('The main reason for playing this game is the escape from a momentarily rather harsh reality (death of a family member', P16863). This escapism state was presented by participants as something they were aware of and actively engaging in:

'Occasionally it feels like I'm living two different lives because I'm so enamored with the world and story of RDR2. At the same time I am just really taken with this fiction and enjoy thinking about it during the day when I can't play it. I sometimes consciously think about it in an effort to relieve everyday stress and boredom.', P58262.

Under the umbrella of 'escapism', there was also the concept of feeling *Absorbed* (N=28) during gameplay. This is similar to the typical gaming concepts of immersion and flow, with participants mentioning things such as 'It's a game I can lose myself in, extremely relaxing' (P47323) and 'it's an active absorption' (P81294). Relaxation was often mentioned alongside this aspect ('Immersion makes me relax, and ignore the worries in real world', P66169) and it seems that feeling absorbed often had a calming effect on participants.

Participants also experienced feeling *Distracted* (N=85) by games in a positive way ('nice distraction', P31370, 'calming distractions', P43640) which was similarly associated with absorption but also fun. There was also an element of specifically being distracted from the pandemic and the associated negative feelings, such as anxiety or stress:

'It keeps my mind off of all the terrible things going on in the country right now that I can't do anything about and lets me focus on things I can impact, like my children's happiness.' P11367

'It feels comforting to be holding my phone. Stops me reading and watching news.' P53117.

Sometimes this sense of escapism was directly linked to associated factors of low mood, such as feeling worthless:

'When I am gaming I can focus on just the experience and objectives. I can zone out reality, which somehow also removes almost all my major depression symptoms. Thoughts of worthlessness? I am freaking gladiator on a unicorn, bring it on!' P19534

Though discussed by fewer participants (N=13), *A Sense of Freedom* was also reported as a positive feeling gained from gameplay. This enjoyment of freedom seems particularly relevant when it comes to discussing isolation and lockdown specifically. Freedom was sometimes linked to the physical space or world of the game and with the ability to explore a game's world at will

'I'm enjoying open-world games (Skyrim and Deadfire) where I'm not on a set linear narrative, but have the freedom to just roam around the digital landscape and accomplish tasks at my own pace. While I am going out for daily walks for an hour, it still makes me feel connected with nature and able to explore scenery in the same way as I would occasionally go out into the countryside.', P14316

'you can run and climb and swim there's a huge sense of freedom ', P90940.

Games seemed to help with a sense of feeling trapped ('Video games on the other hand have helped me feel less trapped', P96784) or being in less-than-ideal home situations ('Additionally, I am with family and have very little personal space, so playing games with a large degree of player freedom feels comforting', P43649). In some cases, there were links to freedom of choice specifically and related aspects discussed in the 'Relaxation' section, such as pacing ('It is an enjoyable game that goes at whatever pace you want, that allows freedom of choice in how you spend your time', P11367). These elements tie into the other aspects of escapism discussed throughout this section.

Overall, a sense of escapism seemed to have a positive impact on mood through several avenues. Firstly, games provided fun and an opportunity for participants to engage with a fantasy world or story. Secondly, some games provided participants with an immersive or absorbing experience which occupied their thoughts and had either a calming or boosting effect on their mood. Games could also offer a feeling of freedom which seemed to ground participants emotionally during a time where they felt they had little freedom in other aspects of their lives.

Fun

The concept of games being enjoyable and therefore improving a participant's mood was a common trend in the data (N=166). Not many instances of this code seemed pandemic-specific but there was an emphasis on social fun ('I enjoyed spending time online with friends and our characters growing together throughout the adventures', P21965) and some mentions of avoiding intense or dark games in favour of lighter experiences ('[About Animal Crossing] preferring the fun and cartoonish to more intense video games', P24414), both of which could be linked to social isolation and general emotional state during lockdown. Some participants brought up the ability for games to facilitate positive social experiences when options were limited:

'Gaming right now allows me to make new memories, share experiences, have something to talk about, meet new people as well as old friends and to create something fun. Therefore it has had a big effect on making me happy. It gives me excuses to spend time socially with others and does so better than zoom pilates and zoom crafting group (which I nevertheless join).' P35750

'It feels like I have been out having fun with my friends all day in a place other than my house, when in reality, I have moved less than 700 feet all day combined.' P47232

These two quotes highlight the potential of games to provide new social experiences and memories or the illusion of new environments, both of which may counter negative feelings emphasised by lockdown. There was also some discussion or implication by participants that games were unique in their ability to provide this ('Games bring novelty to family interactions and generates new experiences and warm memories that just sitting around each other, doesn't.', P18251).

Humour was also a key part of the social fun ('It's a group game and lots of fun - you can be awful in it in terms of humour.', P33016) and there was an element of exploration here as well ('The feeling of freedom and being a pirate and looting ships and islands and it being 1 AM and ramming your boat into another ship and laughing with your friends', P68998).

Fun as a code also existed outside of the social aspect. Many of these instances were just the word 'fun' applied to the game with no further elaboration, but sometimes additional game features were mentioned as facilitating this state of fun. The lighter experiences mentioned above were a part of this ('It's a happy game with a lot of enjoyment from little things; it is relaxing in its music and gameplay', P11367). There was also an element of pacing and being able to get what you wanted from the game when you wanted it ('Instant fun without farming/grinding of any kind', P92830). Both humour and exploration also factored into fun during solo play ('I'm starting to really care about these characters and I laugh audibly at their shenanigans', P74444).

In summary, whilst games inducing a sense of fun and the resulting positive impact on mood might not be a lockdown-specific experience, the emphasis on social fun, humour and the potential novelty gaming can provide might have been more appreciated or sought out by participants due to the circumstances of lockdown.

Social Connection

Many participants reported the mood-boosting potential of games to provide a sense of social connection or closeness with other people (N=156). As mentioned briefly in the previous category, there was an element of novelty to this with some participants talking about how gaming online was one of the only opportunities to meet new people, something which had a positive impact on their mood ('It's been uplifting, as I've made new friends in Final Fantasy XIV and spend quite a bit of time with them', P47213) and helped them cope with some negative feelings from lockdown ('it soothed the feeling of isolation, especially playing ESO and coming in contact with other players, although it was only online.',

P16863). Being unable to have traditional social experiences with elements of spontaneity and novelty seemed to have a negative impact on some participants' mood, with games able to mitigate this in some cases.

Another element highlighted by participants was that they were gaming more with people they hadn't done previously, and that this had a positive impact on their mood and how close they felt socially to those people.

'It's something I enjoy that I can do together with my child. It also has multiplayer relaxed, cooperative play over network that we can get my brother to join, and can even try to teach my kid's grandmother for some virtual togetherness.' P55053

'I'm living at home currently with my mum and introduced her to AC [Animal Crossing], and she loves watching me play and helps me make decisions in the game, which motivates me to play more with her. I've also been playing Just Dance with her and so we will normally set time aside every day or every other day to play Just Dance and AC, which has been a really nice bonding experience' P57767

This sense of togetherness and bonding could be related to another aspect of gaming that participants mentioned, which is that games can provide a unique social experience that is a bit more active or involved than other forms of social interaction:

'It feels like more of a proper way to connect with people and have company. It is a way to connect, not just to disconnect from the world.', P40141

'I genuinely hope that 'night cribbage' and 'night game party ' continues, even after a vaccine is developed. We'll save money by eating/drinking at home, and I feel a much greater connection is made with friends when playing games vs. sharing a meal at a restaurant.', P32162

This emphasis on meaningful social connection seemed important to some participants when it came to mitigating negative moods such as loneliness or isolation ('[gaming can] support the relationship with my partner: really DOING something together, instead of consuming binge content together or giving each other space in this claustrophobic situation we find ourselves in.' P81294). Gaming also seemed to take the pressure off some social interactions which in turn made them more enjoyable, such as reported by P79802:

'It's a way of having social connections without having the pressure to chat about either Covid or all the stuff you haven't been doing due to Covid. It allows you to feel social presence without direct interaction and you write an interesting story together.' P79802

There are also potential links here with novelty again, with games providing new experiences which enrich people's lives and moods at a time where there are limited opportunities for new things to happen.

Though much less common (N=6), it is worth mentioning that some participants reported feeling a sense of social connection with NPCs in games, not just other players. This

sense was often linked to positive emotional experiences such as fun ('I love how it's a game based around making friends and forming connections with others. Slowly getting closer to the other villagers is so much fun', P32124) or relaxation ('I'm starting to really care about these characters and I laugh audibly at their shenanigans. It feels good and - I think - physically mitigates some of the stress I felt early on during lock-down.', P74444) and could act as a buffer against some negative emotional symptoms of lockdown ('The core of the game is forming relationships, making connections to characters. It provides warmth and companionship during a time of cold isolation', P25771). One participant mentioned that while connecting with NPCs did have a positive impact on their mood, they also felt that 'the 'socialising' element of Animal Crossing feels good (until I think too hard about it...at which point it just feels pathetic)' (P24414) which reflects some musings on online socialisation being inferior to in-person interactions ('Sharing the jokes, adventure and dice rolling is one of the best things I know. But I miss being on the same table with them.', P15639).

Overall, games seemed able to provide a sense of social connection that participants found hugely beneficial to their mood and to countering lockdown-related negative emotions, such as isolation and boredom. This social connection was rewarding for participants and seemed to be something that only games (or few other related activities) could provide due to their interactive qualities.

Relaxation

Another positive feeling commonly-reported from gaming was a relaxing or calming effect (N=134). Games were generally reported to have a stress-reducing effect ('the calming nature of the gameplay made it a great fit for stressful times.', P98304) and this was linked to a positive impact on mood ('Gaming always makes my mood better, it is like a reward after a long and stressful day, and reason for it its that is just fun and relaxing activity that you can do at your own pace, without bothering anyone.', P64206).

As mentioned earlier when discussing 'Escapism', games providing escapism and distraction were linked to this relaxing effect. Participants found it helpful to be able to stop thinking about the pandemic for a while and this had a positive effect on their mood:

'helps relax and give something to concentrate on that isn't virus related', P95153

'It allows me not to think of the situation for a while, which is relaxing', P80368

Alongside distraction, the 'active' aspect of games were sometimes mentioned and this was seen as another factor of gaming which allowed for this calming effect ('Gaming has made me feel more relaxed and kept me busy to avoid any rumination. I like to keep my mind active and busy', P69933).

Some game elements seemed to promote this relaxation in the eyes of participants. For example, some participants found narrative games to be engaging and therefore calming ('When I am playing games, I am able to escape the current situation and live through a different storyline. This helps me to relax and allows me to gain some clarity', P52435). The most common game element associated with relaxation seemed to be the game environment,

with players praising physical aesthetics ('The landscapes is beautiful and I guess it helped releaving the stress of lockdown.', P90940) and how a game environment felt ('It's doing wonders to my mental health, just having that relaxing space and nowhere else to be', P74444). Animal Crossing was particularly associated with having a pleasing and calming atmosphere and look:

'Animal Crossing appealed to me as a relaxing alternative to the action-packed, high-intensity games that I would usually play. Since it is all about hanging out on your very own island and relaxing by fishing, catching insects and furnishing your home, it was a nice way to wind down and find a peaceful space to escape into.', P79990

'It's a happy game with a lot of enjoyment from little things; it is relaxing in its music and gameplay, and I can play it with my children and husband, which is fun for all of us. We need a little sunshine in our lives right now and goals like catching all the fish or bugs. It's just so darn wholesome.', P11367

As highlighted by the above quotes, the element of collection was also sometimes associated with relaxation. Unlike achievement (which will be discussed shortly), this reflects a slower sense of progress which is often self-paced. Being able to play how the participant wished was often linked to relaxation as well ('I also like the tranquil vibe of the game, it's soothing to not have a strict time limit or goal that I have to reach and I can play in whichever way I feel like.', P37108).

To summarise, creating a sense of relaxation seemed to be an important way in which games had a positive impact on mood for participants. This seemed to be linked to a game's ability to distract and promote a sense of escapism in a player, which may have been facilitated in some cases by the game's story or environment. The pacing of a game might also play a part in reducing stress in participants, including factors such as self-paced goals and a lack of time limits.

A Sense of Achievement

A sense of achievement in this case refers to participants feeling accomplished, skilled or otherwise challenged through gaming. Cognitive stimulation will also be discussed alongside these factors as there is overlap in terms of associated feelings with both achievement and mental stimulation.

Several participants (N=59) mentioned a positive association with feeling challenged or as though they had achieved something when gaming ('[gaming has affected my mood] positively- i feel like i'm getting something done', P14144). Achieving something in-game had links to feeling calmer ('I believe having relaxing video games to turn to to keep my mind busy and keep me feeling productive has helped keep me more calm and less anxious than many around me seem to be.', P17627) and reducing the impact of depressive symptoms ('Its also helping me feel a sense of progression and development which im struggling with at the moment as im feeling a bit of depression', P65511). This relaxation element could also be

seen with cognitive stimulation ('Gaming has helped me keep some stability. I get very anxious and low, and it helps by giving me something to focus on.', P17310).

Positive feelings associated with achievement also had ties to escapism ('For the most part it has positively affected it in the short term by offering escapism from my current environment and a sense of short term purpose and achievement during games', P66606) and focusing on improving or winning at games allowed for successful distraction for some participants ('Enjoyable skill based shooting meant that i could find satisfaction in the gameplay loop and to master it as a welcome distraction from the outside world', P85434). There was also an implicit association between escapism and manageable goals in some cases ('It's fun to lose yourself in a gaming environment for some time, where things are always solvable and generally exciting.', P64880) with participants finding comfort in this:

'There are a lot of ways in which stay-at-home measures have made it feel difficult or impossible to progress with anything in real life, but you can keep progressing in the idyllic island world of Animal Crossing. Sad, but true.' P24414

'For warcraft, the daily meditation of doing easy quests has given me something that is achievable' P17590

Again, similar associations could be found with cognitive stimulation, with people finding mental challenge to be positively distracting ('I haven't taken well the current situation and they have provided me with a good distraction that can keep my mind active', P50686) and calming ('it's helped distract from anxiety, by giving my mind something to work on, or by being a calming thing to do. AC [Animal Crossing] is pretty chill, with no risk.', P52606). There were also some implications of a 'sweet spot' when it came to the level of cognitive challenge ('The game series is in-depth enough to require some complex thought but is not stressful', P98304).

In terms of potential negative feelings prompted by lockdown, achievement in gaming seemed able to help mitigate a loss of progress/achievement felt by participants in daily life in some cases ('[I've spent more time planning D&D] which I did pre-lockdown but which I do all the more now as it adds a sense of purpose to the day and achieving things in game feels all the more important', P14316). This was mirrored with feeling smart and cognitive challenges ('It exercises the brain, I can play it in very small doses on my phone, and also it lets me feel competent and clever at a thing even when I am not managing this at anything else', P39914).

Sometimes the lack of achievement outside of gaming was specifically due to work being affected by the pandemic ('Especially when work can at times feel like I've not really achieved anything, the thrill of knowing that I've accomplished something each session is a huge drive', P14316) and achieving something in game could be used by a participant in order to motivate them outside of the game ('It has been effective in making me feel like I've achieved something and so I can go back to my work and try to mirror my achievement there as well.', P73118). Though not hugely frequent, this does highlight the potential of people using gaming deliberately to counter some of the negative impacts of lockdown on their

feelings and associated traits. Participants seemed generally aware of the benefits of achievement in gaming on their mood ('It has improved it as it gives me something to focus my mind on which is think is majorly required when it happens to be coupled with staying at home all the time.', P22549).

Another aspect discussed in relation to these codes was the element of social achievement. This could be seen in responses focused on cognitive stimulation ('It's a good opportunity to use critical thinking skills whilst socialising.', P86037) and general achievement (It is goal oriented, that I am usually working together with friend to accomplish, where we all work to escape reality and brighten each other's mood', P54948). There was not much elaboration on this aspect by participants but this reflects a continued trend of the importance of social play throughout the dataset.

In summary, achieving or making progress in-game seemed to have a positive impact on participants' mood through a mix of associated positive feelings and the emotional benefits of focusing and achieving on a specific goal or action. Sometimes there was an element of having a shared goal/action which helped foster social connection and the associated positive elements within that.

Sense of Structure

One sense that games seemed able to instill in some participants was a sense of normality or structure (N=30). Some participants appreciated that gaming was still available as an option during the pandemic and hadn't changed much ('it's the only one of my standard hobbies which can continue (almost) as normal.', P14316) whilst others focused more on the ability of gaming to replace other activities, which also resulted in a sense of normality:

'I've had my first experience of zoom and twitch gaming, having done some jackbox games and cards against humanity with friends (and friends of friends) in the town I've just moved from. It's been a really great way to have some sense of normality as I've missed going to the pub or to their houses to hang out and drink. Drinking socially is something that hangs together with that type of gaming too, which again helps with it feeling normal and providing a blowing off steam sorry of feeling', P17310

Earlier it was discussed how monotony and boredom was something participants struggled with feeling during isolation, and games seemed able to provide some sort of structure or routine to this monotony which was appreciated by participants ('There are also multiple events every week so I feel as though I am still having a sort of routine and getting social interaction even when I am at my house', P18675). In some cases, gaming was described as one of the few things providing routine ('Preparing a session for pathfinder 2 gives me things to do even if focusing is a struggle and playing each Saturday is the only structure I have right now.', P32124) and this might be particularly important to participants who lived alone ('I look forwards to activities like this because I am otherwise living with myself and have very limited ways to socialise in a structured or fun way - phone or video calls only go so far, unfortunately.', P47347).

Another way games improved how participants felt was by providing structure in the form of separating life from work. A few participants mentioned struggling with working from home and 'switching off' from work, and how gaming acted as a substitute commute:

'Moreover, there is no work/home separation right now, and no way to distance oneself psychologically from work as in physically driving home, and games help to fix this by providing a medium for such a mental shift after work hours. They're basically my driving home mind clearing routine right now, before I start non-work related activities.', P51727

'acts as a sort of break from work (almost like a commute) it is a time to clear my work thoughts and relax.', P96806

Overall, a sense of routine and normalcy seemed important to some participants during this time of uncertainty and games were able to provide a sense of that which seemed to be viewed positively by them and subsequently have a positive influence on their emotional state.

3.3.3.1 Negative Feelings

In total, there were 111 instances of negative moods from gaming (see **Table 1.7**). When including subcodes, the most common negative feelings from gaming reported were Dissatisfaction (N=26), Frustration (N=21), Guilt (N=20) and Addiction (N=11) which will now be discussed in further detail.

Negative Moods Experienced During Gaming	Definition	Count
Dissatisfied	Enjoying gaming less than previously	26
Frustration	Feeling angry, frustrated or otherwise tense after playing a game	21
Guilt	Feeling bad about having played, either due to ignoring responsibilities or some similar reason	20
Addiction	Feeling addicted or otherwise dependent on a game	11
Stressful (gaming)	Finding a game stressful or overwhelming	7
Detached/Isolated	Feeling isolated, lonely or missing friends	5

Sad (gaming)	Sad	5
Exhausted	A game tires someone out	4
Dissociated	Being absorbed by gaming but in a negative way	3
Emotionally taxing	Being affected emotionally by a game in a strong, somewhat unspecified way	3
Restless	Restless, struggling to relax	3
Bad mood	A negative mood not covered better by another label	2
Pain/Strain	Person feeling pain or otherwise unpleasant physical sensations	1

Table 1.7: A table showing all of the negative feelings experienced during gameplay, organised by most frequent to least frequent

Dissatisfaction

Some participants reported enjoying gaming less than they normally did, resulting in the code of *Dissatisfaction* (N=26). Sometimes this was a general issue related to work stress ('I think it has kept me from becoming too fixated on my work, however due to the underlying stress of impending coursework the overall enjoyment is reduced', P14454) but this was also often linked to lockdown ('I can't enjoy games because I should be doing something else, even if I've set that time apart. In isolation, these issues have been just as prevalent, if not more intense', P42517).

A few participants described gameplay feeling more passive and less satisfying ('I've become more focused on games that I've played alone, often losing track of time and forgetting to eat. It feels less like I'm engaging with the game and more like I'm just passing time. I'm not enjoying it.' P59433) and this was mostly tied specifically to solo play ('Playing solo games is also fun, but I find myself becoming bored with them quickly and feeling apathetic towards playing any game at times. Also, sometimes I find myself not enjoying the game despite it being one of my favourites (so I haven't played the sims in a couple of weeks because of this).', P67575). Boredom with gaming was a large part of this code generally speaking ('With no other option but to stay home during lockdown, there are times when playing a single player game can get quite exhausting or boring.', P54699). Again, the element of single-player games being boring can be seen here which mirrors the positive effect of novelty found in multiplayer games.

Several participants highlighted how while lockdown was a 'gift' of time, it felt wasteful to spend that time playing video games and so their enjoyment of gaming decreased

('I have been playing more games but enjoying them less. As such, I've generally had a lower mood as the quality of my time with games has deteriorated. I've been avoiding work, bettering myself, learning new things, and working on projects either by hiding in my settee or playing games. As such, I have enjoyed my time during and after play far less.' P42517). Others described how 'gaming suddenly seems futile' (P43376). This idea will be revisited in the context of participants feeling guilty about their play.

Overall, *Dissatisfaction* seemed to prompt a stronger sense of longer term unhappiness when compared to the other negative feelings experienced during gaming. There was a sense that lockdown was not enabling people to have the kinds of gaming experiences they found rewarding and that they felt gaming too much was affecting their enjoyment of it as a hobby.

Frustration

Frustration refers to annoyance, anger or irritation experienced whilst playing a game and this was the most common negative feeling reported by participants (N=21). Frustration experienced during gaming was often related to poor performance in-game ('frustrated when it goes badly', P94299) or sometimes an inability to focus properly on a game ('If I don't focus then I can only play for a few minutes at a time before getting frustrated and turning it off. I want something to do, but I can't concentrate.', P59433). There are some similarities to the *Dissatisfaction* code but there were additional components of anger and rage, and it wasn't always clear to the participant as to why they felt that way ('I don't know why but gaming frustrates me now. The idea of playing games right now makes me feel annoyed or angry..', P42517).

Often when frustration was mentioned, it was also minimised by the participant. This could be done by emphasising that the positives of gaming outweighed the negatives of the frustration ('Yes, while at times it's made me frustrated for various reasons it generally distracts me and makes me happier', P17200) or that the frustration did not tend to last long ('I must admit, I sometimes get frustrated with the games, but that's very short-lived and the general feeling is positive.', P59414). One participant explained how frustration was also a source of amusement to them:

'I still get frustrated [by] my gaming - this morning on Baseball Stars I got grumpy when I lost a game - but it's not something I take seriously like I did when I was a child / teenager. Indeed, I catch myself laughing at myself if I get annoyed by gaming now. It's still important, and I still want to do well at games, but it's much more about fun and relaxation', P31567

There were a few examples of frustration either prompted or worsened by isolation. One participant described how there were limits to escapism and this caused frustration ('Elation followed by frustration. I can only escape for so long until I remember where I'm at and everything that's required of me.', P25771). Feeling isolated and like gaming was the only option was another source of frustration for a different participant ('Playing on my own has been frustrating and lonely. The variation between focusing intently or not being able to

engage at all is unpredictable. I'm not choosing to be alone. It's not recreation time for me. I'm playing because I can't do anything else. And that makes my mood worse.', P59433) and elements of *Dissatisfaction* can be seen here. In this case, the frustration seemed related to a lack of freedom of choice and exacerbated by cognitive issues with focusing.

In summary, frustration could be the result of participants not having the game experience they desired whether that be due to struggling to meet the challenge of the game or factors outside of their control, such as problems concentrating. Frustration seemed to be a very temporary negative factor in terms of how most participants reported it and it did not seem to hugely disrupt the positive aspects of gaming, setting it apart from Dissatisfaction (along with the additional emotional component of anger).

Guilt

Guilt in this context refers to a specific kind of regret about playing games whereby the participant judged their play to be an unreasonable action on their part (N=20). Two main factors resulted in participants experiencing guilt. Firstly, when they viewed games as a waste of time and lacking value ('Mood goes down when existential dread hits and I feel bad about not doing anything 'valuable' or 'productive' with my time. Or for playing games instead of doing work because stress.' P20389). Interestingly, this was sometimes reported by participants who simultaneously praised the game for positive effects on their mood ('My mood does occasionally plummet because I intermittently feel guilty for dedicating time to Animal Crossing -- which is objectively a worthless use of time -- rather than working on crafts, or writing, or doing other 'real life' activities. But the guilt doesn't outweigh the sense of relief and escape.' P24414). In this case, the game is described as 'a worthless use of time' despite the positive associations of 'relief' and 'escape'. One participant talked about how they felt like the additional free time of lockdown was akin to a gift and that they should be doing something (presumably) more valuable with it ('I do feel a certain guilt while playing, as this amount of free time is almost too good to be true and I feel like I should be putting the time into a personal project of some kind.', P42438)

The second situation that prompted guilt was the avoidance of work or similar responsibilities ('Generally gaming lifts my mood massively - the only flip side of that is the guilt from spending too much time on phone games during the work day.', P31370). This avoidance of responsibilities was linked by one participant to their mental health and mentioned this being exacerbated by lockdown:

'I've always had issues with doing work, practicing skills, improving myself due to issues with depression and anxiety. When I'm at home, I tend to be paralysed with indecision on what to do. I can't enjoy games because I should be doing something else, even if I've set that time apart. In isolation, these issues have been just as prevalent, if not more intense' P42517.

Guilt ultimately reflected a sense that someone had engaged with a game to the detriment of other activities or experiences. Though many participants who experienced guilt

viewed games as still a net positive, guilt reflects a negative emotional state which can arise from gameplay and might be associated with the increased pressures of lockdown.

Addiction

Addiction is another term not traditionally used to describe a 'mood' but in the context of this work, it is defined as 'a feeling of addiction or obsession associated with gaming'. When asked about their mood, a few participants brought up this sense of feeling addicted:

'It has definitely improved it in many ways but also made me a little impatient. It is good because it gives me something to do, but it's bad because the the "pings" it gives my brain makes me want to play more and sometimes puts me in a bad mood the next morning.', P50265

'Video games on the other hand have helped me feel less trapped, and distracted me from boredom and isolation- at the cost of my motivation to pursue other interests during this time.', P96784.

Though it has a negative valence associated with it due to the traditional connotations of the word, it is worth mentioning that some participants used it as more of a neutral or unclear term:

'[Gaming] is a necessity.', P39149

'I've been playing (and clinging to) video games more during this, since I can't go out and do things.', P67164

There is not much information provided around this code as to what might prompt addiction but it is worth mentioning here as it seemed to be a negative sensation that some participants expressed concern about. Like guilt, it seems to be an emotional state which might result in a worse mood after play or longer term negative impacts of play.

3.4 Discussion

Overall, this study aimed to examine the gameplay habits of people during the first wave of lockdown in the 2019 Covid Pandemic in relation to emotions, feelings and moods. The goal was to examine what kinds of feelings might be experienced by players as a result of gaming during the pandemic and whether these feelings were mostly positive or negative. The research questions were as follows:

1. What kinds of feelings and/or moods do people report experiencing during lockdown?
2. What kinds of feelings and/or moods do people report experiencing as a result of gaming during lockdown?
3. Do games have a positive impact on how people are feeling during lockdown?

These questions will now be explored along with some key findings.

3.4.1 Participants largely reported experiencing negative emotional states outside of gaming (RQ1)

During lockdown, the vast majority of moods mentioned outside of gaming were negative. Only two participants mentioned feeling positive and both of these instances were a general positive mood rather than a more specific state. By comparison, a range of negative moods were mentioned. The most common of these were Stressed, Anxious, Bored, Isolated/Lonely, Low Mood and Tired.

The main purpose of this research question was to determine whether participants were experiencing poorer wellbeing and in particular, symptoms of low mood during lockdown. Though mood outside of lockdown was not asked about directly, participants still talked about the effect lockdown had on their mood and it was clear that many were struggling with negative emotional states. The assumption that mood and wellbeing would generally be low is therefore accepted, although with the caveat that low mood is less prevalent than expected in the data set. Low mood was mentioned 13 times, depression was mentioned 8 times and there were associated symptoms (such as low energy or low motivation) which did crop up, but other negative states took prevalence, such as feeling stressed or anxious.

It is possible that fewer participants had low mood than expected due to the recruitment methods, as people suffering strong depressive symptoms might not engage with social media. Alternatively, it could be due to the timing of the experiment as data was collected in May 2020 which was relatively early into lockdown. It is possible that if data was collected at a later point, more people would be experiencing low mood as a result of lockdown as mental health deteriorated for many as the pandemic went on (Montero-Marin et al, 2023; Rosa et al, 2022).

Therefore, while it cannot be assumed that the majority of participants were experiencing low mood specifically, it does seem the case that many participants were generally feeling negative. The most prevalent negative moods (feeling stressed, feeling anxious and feeling bored) can be reflected in the positive moods experienced during gaming which will be discussed next.

3.4.2 Gaming generally promoted positive feelings in participants (RQ2 and RQ3)

Considering RQ3, participants reported more positive feelings than negative ones by a large margin. These findings align with previous work which has found that gaming during the pandemic was largely seen to have a positive effect on mental health ten times more often than a negative impact (Barr & Copeland-Stewart, 2022) and that games were useful for mitigating stress, anxiety and depression (Pallavicini, Pepe & Mantovani, 2022). Considering RQ2, the most common positive feelings reported were A Sense of Escapism, Fun, Social

Connection, Relaxation and A Sense of Achievement. These feelings often interacted with each other, with a sense of escapism impacting fun and relaxation, and vice versa.

Focusing on escapism first, this aspect seemed to have a positive impact on participants' mood through providing opportunities for engagement, which could both provide distraction and be a positive experience within itself. Mood Management Theory (MMT; Zillman, 1988) states that media has an 'absorption potential' which refers to its ability to capture and hold attention. Reinecke et al (2012) suggested that the potential for games to distract people from negative moods plays a key part in their ability to facilitate mood management and there is some empirical work to suggest this may be the case (eg. Bowman & Tamborini, 2012; Bowman & Tamborini, 2015; Weber et al, 2020). Mood Management has been referred to as one of the 'pillars' of healthy escape (Kosa & Uysal, 2020) and this supports the idea that participants were seeking out games able to provide a sense of escapism during isolation. Additionally, work conducted examining gaming during difficult life experiences (Iacovides & Mekler, 2019) found that games were able to act as a break for people going through exhausting experiences and could provide a valuable distraction in these circumstances.

With regards to relaxation, it is perhaps interesting that participants often referenced the ability of games to reduce stress and have a calming or relaxing effect in relation to escapism and distraction. Aspects of games such as peaceful environments or mechanics were reported by some participants to reduce stress, and being able to self-pace goals also seemed to assist with this. However, Bowman and Tamborini (2015) found that whilst active gaming conditions (with a sense of immersion and presence) were able to repair boredom, they were less successful at repairing stress. Outside of the focus on escapism, games have been found to reduce stress across several different studies (eg. Russoniello et al, 2009; Villani et al, 2018; Pine et al, 2020; Pallavicini et al, 2021; Pallavicini et al, 2022) and other research from areas such as how games may assist with post-work recovery also suggests this relaxation factor. For example, Mella, Iacovides and Cox (2023) examined the role of immersion on post-work recovery and found several elements to be useful for post-work recovery which can be mirrored in the data set here. They found that for post-work distraction, cognitive involvement had to be sufficient enough to not think about work, which is somewhat similar to the positive effect participants reported from feeling cognitively stimulated. Additionally, being transported to a game environment aided with post-work distraction, and several participants in the current study talked about how the game environment was associated with different positive feelings, such as relaxation and escapism.

Focusing on the pandemic specifically, the current findings align with those by Pallavicini, Pepe and Mantovani (2022) who conducted a systematic review examining the effects of gaming on stress, anxiety and depression during the pandemic, finding that games generally reduced these factors. This finding aligns with the current data, with participants reporting gaming to be relaxing, helping with negative thoughts and generally boosting mood. From the limited data provided around low mood and associated symptoms of depression, gaming also appeared to help with these aspects in the current study. Playing games to reduce stress during covid was also found in an interview study by Türkay et al

(2023), with all 11 participants reporting using games to cope in some capacity during Covid and 5 explicitly mentioning using gaming to relax. Barr and Copeland-Stewart (2022) similarly found that participants reported games reduced stress, improved their mood and provided a sense of agency during the pandemic, which was linked to competence and a sense of progress. This may be related to the sense of achievement reported in the present study.

Achievement has been linked to positive emotions in gaming literature before (eg. Behnke, Chwilkowska & Kaczmarek, 2021; Rieger et al, 2014). The need for competency and the potential for games to fulfil this need has been highlighted by previous work surrounding Self-Determination Theory (Ryan & Deci, 2002; Ryan & Deci, 2022). A need for competency can potentially be seen where participants in the present study talk about desiring things which are achievable and mention how games allow them to feel competent when other factors in life are not providing this. Previous work (Iacovides & Mekler, 2019) has found that small achievements are seen as beneficial to people going through difficult life experiences, and this can be seen mirrored in the current data set where participants talk about making progress and the increased value of in-game achievements in their lives during isolation.

Similarly, mastery may play a role in post-work recovery (Mella, Iacovides and Cox, 2023) with a balance between challenge level and ability to complete the challenge being important for relaxation. This balance of challenge wasn't quite seen in the current data set as while there were some participants who talked about a calming effect with regards to achievement, relaxation was more commonly associated with cognitive challenge and stimulation specifically. Comments about achievement more generally did not seem to highlight a need for a 'manageable challenge' as much as might be expected. However, the balance of cognitive stimulation can also be seen in the post-work recovery and immersion work (Mella, Iacovides and Cox, 2023) with cognitive involvement being a significant predictor of overall recovery experience. Related to this, the most common negative feeling experienced from gameplay was frustration. Frustration was often linked to a lack of achievement/progress or performance in a game that the participant wasn't happy with. Though these incidents were fewer, this could suggest that there was some element of 'manageable challenge' desired by participants which perhaps wasn't captured by the 'achievement' code itself but was evident only when that aspect was missing, leading to frustration. This idea is potentially supported by related work which has found links between frustration and competency in gaming (Tyack, Wyeth and Johnson, 2020). It is also possible that due to the nature of the pandemic and the fact many participants expressed feeling bored, participants had an inflated desire for challenge or a higher threshold for what constituted 'manageable'. Therefore compared to a population who is recovering from the stress of work which is cognitively demanding, the stress felt during the pandemic might be conceptualised differently and therefore have different recovery demands.

Another key way gaming impacted positively on participants' mood was through social play and providing a sense of social connection. Social play generally seemed to be beneficial to mood through providing fun, the opportunity for new social experiences and

humorous interactions. Social play has been associated with positive benefits for mood in previous research (eg. Halbrook et al, 2017) and humour specifically has been found to be linked to social play (Behnke, Chwilkowska & Kaczmarek, 2021). Humour is largely beneficial for wellbeing outside of gaming (eg. Crawford & Caltabiano, 2011) and so it is not surprising that humour had positive associations here. The importance of gaming to provide new social experiences was highlighted by several participants and this is likely related to lockdown and the fact that new social experiences were limited. Given the prevalence of feeling bored both during and outside of gaming, it is not surprising that novelty would be valued by participants and would be associated with a positive emotional state.

In terms of social connection, this was a very common aspect for participants to mention and it prompted feelings of warmth, emotional closeness and a lessening of negative states such as anxiety or stress. The benefits of social play throughout the pandemic were recognised by several studies (Türkay et al, 2023; Yee & Sng, 2022; Pearce et al, 2022). Yee and Sng (2022) found that games were well-suited to satisfy the need for relatedness during the pandemic which can be seen expressed in the prevalence of social connection in the current data set. Yee and Sng's results showed that even sharing a digital space with limited communication was found to be beneficial which can be reflected in the way some participants in the current study talked about gaming providing a low effort way of socialising during isolation. Work around gaming during difficult life experiences (Iacovides & Mekler, 2019) also demonstrates how gaming can provide the opportunity to connect without the need to talk about specific issues, which can be seen in the way many participants in the current study praised gaming for providing a social activity to focus the social interaction around.

When interpreting how much the context of the pandemic matters when considering the positive feelings reported throughout this section, this is a difficult question to address. Many of these positive aspects are well-established in previous literature when it comes to looking at the emotional benefits of gaming. However, it is clear from how participants talk about certain emotional states that some of these benefits are new to them personally. For example, though playing for social purposes is a well-established motivation for play (eg. Cole & Griffiths, 2007; Ryan, Rigby & Przybylski, 2006; Kaye & Bryce, 2012), several participants mentioned how they hadn't considered using videogames to socialise before. Additionally, many mentioned how family members who had not expressed an interest in gaming previously were now playing with them in order to feel a sense of emotional closeness. Other emotional states, such as a sense of achievement or escapism, might be more desired by participants during the pandemic, and this is reflected in the way participants talked about these elements. It seems that while the emotional benefits mentioned here might not be unique to lockdown, there are aspects of lockdown which impacted how games made people feel.

3.4.3 Negative feelings experienced from gameplay tended to be temporary (RQ2)

Although they were less frequent, there were a range of negative feelings experienced during gaming that were reported by participants. Addressing RQ2, the most common negative feelings were Dissatisfaction, Frustration, Guilt and Addiction.

Frustration and dissatisfaction were somewhat related, with frustration being characterised by anger or irritation at a specific gaming experience (such as losing) and dissatisfaction being characterised by a general diminished enjoyment from gaming. There is some evidence to suggest that Twitch streamers expressed more anger when streaming during the pandemic (Chae et al, 2022) although it is not known how widespread this frustration might be outside of this narrow context. As with the current study, other work examining gaming during the pandemic has also found that participants reported negative emotional associations with feeling gaming was the only option available to them (Türkay et al, 2023). There are also elements of dissatisfaction in Yee and Sng (2022) surrounding the sense of activities in games becoming chores rather than choices. In the context of the pandemic, it seems likely that negative feelings like dissatisfaction with gameplay were potentially exacerbated.

When considering guilt around gameplay, many participants expressed a competing opinion that a) gaming was a waste of time compared to other hobbies, and b) gaming was extremely valuable to their mental health during the pandemic. In Barr and Copeland's study (2022) the most common negative view expressed towards gaming during the pandemic was that it was a waste of time. Similarly, Türkay et al (2023) found that a small number of their participants found gaming interfered with their ability to complete work for school or their job. Lockdown was a unique situation for many participants as they had less responsibilities than usual due to workplaces and universities closing down temporarily. Participants in the current study who expressed guilt about their play often also expressed that gaming felt more acceptable now due to the lack of other options and obligations. It would be a good point of further study to examine under what conditions guilt around gameplay manifests, particularly in terms of how it impacts any benefits gained. There is some work around reduced benefits from media in terms of recovery when guilt is involved (Reinecke, Hartmann & Eden, 2014) but this remains relatively unexplored in the context of gaming.

Feeling addicted or obsessed with a game was another negative state reported by participants. As with guilt, some participants who expressed feeling addicted also mentioned several emotional benefits of gaming still. A study by Formosa et al (2022) might shed some light on this. This study examined differences between playing for harmonious passion and playing for obsessive passion during the pandemic. They found that unlike gaming outside of the pandemic, either kind of passion for gaming seemed to result in positive emotional effects. Previous work has found diminished benefits of gaming if obsessive passion is the motivation for play (Mandryk et al, 2020) so these findings suggest there might be something unique about gaming during the pandemic that means passion of any kind is beneficial. Applied to the current study, it seems likely that even participants who were concerned about feeling obsessed with their gaming still gained positive elements from it, although the potential negative impacts of addiction should not be dismissed.

In summary, there were several key negative emotional states experienced from gaming during the pandemic. The majority of these emotional states were stressed by participants to be temporary and to not outweigh the benefits they gained from gaming. The only exception to this was the most common negative emotional state, dissatisfaction. Dissatisfaction appeared to have a slightly longer-lasting impact and also often reduced the positive feelings associated with gaming.

3.4.4 Summary of Results

Overall, this study aimed to address three key research questions. RQ1 concerned the general emotional state of people during lockdown. It was found that generally speaking, people seemed to be experiencing negative emotions during lockdown. The most common of these involved stress and anxiety, though there were also people who reported feeling low mood and other associated states, such as low energy or low motivation.

Focusing on RQ3 next, it can be concluded from the data that participants reported feeling more positive emotional states than negative ones. It seemed that overall, gaming provided many positive benefits to participants during lockdown and had relatively few negative effects. These findings would suggest that gaming was a suitable method of emotional support for people during the pandemic and was used to foster a range of positive moods during a time of emotional negativity.

In terms of addressing RQ2, there are two elements when considering what emotions were experienced by participants during gameplay: positive feelings and negative feelings. Firstly, it can be inferred that several negative emotions might arise from gaming. These emotions are often related to how satisfying the experience of gaming is for the participant, including aspects such as expectations and reasons for engaging with the game. If a game is too hard or is not what the player expected, then feelings of frustration and dissatisfaction may occur. If gaming feels less like a choice and more like the only option for entertainment, then dissatisfaction may occur. Other feelings such as guilt or addiction might arise due to how an individual perceives their gameplay and to what extent they feel it is 'appropriate' or 'justified'. These negative emotions do not seem to outweigh the positive emotions felt from gameplay but they may reduce the benefits in some cases, although this relationship is less clear from the current study.

Considering the positive emotions next, there were several positive emotional states highlighted by this work. The two most common feelings were a sense of escapism and social connection. Neither of these aspects are unique to the pandemic and are generally considered to be benefits of gaming in the wider literature. However, from the way they are talked about by participants in the current study, it seems that these positive states might be more sought after and more valued by participants in the context of lockdown. Similarly, relaxation was another common positive emotion reported and this ties into the fact that, outside of gaming, feeling stressed and anxious were the two most commonly reported emotions. Though relaxation may be a benefit typically associated with gaming in other literature, the heightened stress of the pandemic likely impacted how much participants sought this out and

appreciated it. Similar arguments can be made for achievement and other positive emotions experienced. The one exception would be a sense of structure, as this seems quite specific to situations where people would lack a regular routine in their lives and so would rely on gaming to provide that routine.

In conclusion, gaming had a positive impact on peoples' moods and emotional states during lockdown. These findings highlight the potential for games to help during periods of negative emotional states and outline some of the key ways games might emotionally benefit people during these times.

3.4.5 Limitations and Future Directions

When it comes to interpreting the findings of this work, there are several limitations. Firstly, RQ1 concerned how people were feeling during lockdown outside of a gaming context but no question specifically addressed this.Whilst there is evidence that participants talked about their feelings outside of gaming, it is possible that asking about this aspect directly would have resulted in a different pattern of responses. For example, participants largely brought up negative feelings around the pandemic which might be because they were experiencing more negative emotions or might be simply that they felt the study was a place to vent, and so they emphasised these emotions more. Other work has supported the idea that lockdown was generally a time of negative emotions for people (eg. Rosa et al, 2022) so this limitation is unlikely to impact results hugely but it is worth consideration all the same.

There is a potential limitation with the study design also. Though a survey design was chosen to reach a wide range of participants and to make participants more comfortable with talking about potentially difficult topics such as mood and wellbeing, this design also removed the opportunity to ask follow up questions. Some ambiguous responses and implicit elements would have benefitted from further unpacking to gain clarity and additional detail. Future designs may wish to employ a different method or incorporate interviews alongside surveys in order to allow for further exploration of responses.

Another potential point of consideration is how the coding criteria were defined and the impact that had on the kinds of data which emerged. Positive feelings were typically characterised as more abstract or less traditional states of being compared to negative feelings. For example, 'A Sense of Escapism' would not typically fit the criteria for a 'mood' but does represent a state of feeling with an associated emotional valence. Compared to things such as 'frustration' or 'guilt', it is interesting to see the difference in how participants reported these feelings. If a stricter definition of mood had been applied to the data, then much of the detail in the positive aspects of gaming might not have been captured. However, research into language has found that there is a bias towards how positive and negative words are used, with negative words having more different types (Rozin, Berman & Royzman, 2010), arguably supporting the logic of the study in terms of how positive and negative terms were coded. There is also potential for the opposite problem to have occurred. For example, if a wider definition of 'creativity' or 'cognitive stimulation' had been used, then there would have been more instances of these codes since these terms were excluded unless they seemed

to specifically relate to a sensation of feeling. These coding decisions were made in order to best represent the data and best address the research questions and it is felt that both of those goals have been met. Future work could explore these aspects further by including both traditional lists of moods and open questions.

In terms of what this study can add to literature around the pandemic, the timing of data collection is an important aspect to consider. This data was collected early on in the pandemic and was a single-wave study only. Therefore the data on how participants were feeling is within the context of early isolation. The relatively early date of May 2020 could explain the prevalence of things such as stress, uncertainty and boredom and the relatively lower mentions of low mood and loneliness. It is possible that if people had been isolated for longer or a second wave had been carried out, the effects of isolation would change and they might report experiencing different moods. This idea is further supported by work which suggests depressive symptoms specifically did not worsen until 2021 (Rosa et al, 2022). Future work focused on fluctuations in moods and gaming could help shed additional light on this outside of a pandemic context.

3.4.6 Conclusions and Contributions to the Thesis Questions

Thinking about what this work contributes to the overall thesis questions, there are some clear limitations that must be noted. The thesis is primarily concerned with persistent low mood and the current study is limited with regards to this as there was no direct measure of either depressive symptoms or persistent low mood. Though some participants mentioned having depression, this was a small amount of the sample and was not asked about directly. However, the initial goal of this study was not to hone in on low mood but rather to investigate the range of potential moods and feelings experienced during gameplay during a particular event.

What this study can however address is the first thesis research question regarding 'How do games impact low mood?'. Some participants did express having low mood or depression, as well as associated symptoms such as low motivation or a disinterest in hobbies. As such, whilst it would not be appropriate to draw conclusions about a low mood population based on this study's findings, there are still some things this study can tell us about how gaming might impact low mood. Firstly, it highlights several ways games might be beneficial to people's moods and feelings during a period where they are experiencing a negative emotional state. In a similar vein, it also sheds some light on what aspects of a gaming experience might result in a negative mood change.

With this in mind, the next steps to address the overall thesis questions were to focus on the research questions concerned specifically with persistent low mood. This brings us to Study 2.

4. Gaming preferences, habits and attitudes in a persistent low mood population

4.1 Introduction

The first chapter examined how gaming influenced the moods and feelings of people during a time of stress and uncertainty. While the previous study did highlight some ways games might impact low mood and other negative emotional states, the sample and methods limited conclusions which could be drawn about persistent low mood specifically. The next step was to examine the impact of games on people with persistent low mood as there is still little known about how this population might interact with and be affected by games. People with persistent low mood may be vulnerable to using games in an unhealthy way but may also gain several benefits from gaming. If the latter is the case, then games could be a useful tool in helping ameliorate symptoms of persistent low mood but first, the effect of games must be explored further.

With this in mind, there were a few different routes for examining how gaming might impact people with persistent low mood. One potential idea was to conduct a redesign of Study 1 focused on people with persistent low mood and with questions designed to look at mood more specifically. However, one of the limitations of the previous study was the inability to question participants and ask follow-up questions about their responses due to the survey design. Additionally, there has not been much research into persistent low mood specifically and so an in-depth exploratory approach seemed most appropriate. Therefore, an interview study method was chosen with semi-structured questions to allow for detailed responses and a participant-led approach.

The aim of the current study was to interview gamers who self-identified with persistent low mood to explore the following research questions:

1. What kinds of games do people with persistent low mood play?
2. When do people with persistent low mood play games?
3. Why do people with persistent low mood play games?
4. How do people with persistent low mood feel about their gameplay (in terms of both actual moods and attitudes)?

These questions were chosen to address the following overall thesis questions:

1. Why does someone with persistent low mood play games?
2. What effect do games have on people with persistent low mood?
3. How do people with persistent low mood feel about their gaming?

4.2 Methodology

An interview method was chosen to allow for participants to be asked follow-up questions, as one of the limitations of the survey approach from Study 1 was ambiguous or brief responses. As well as facilitating a more in-depth and exploratory approach to a relatively under researched topic, one of the research questions was focused around game types which are often used ambiguously or inconsistently by people (Clarke, Lee & Clark, 2017). For example when listing games in Study 1, many participants used the term 'RPG' referring to several different types of games and so individual clarification could be achieved as to exactly what someone meant by a term or description through the use of an interview design.

Another factor is that while a survey might make people feel more comfortable disclosing sensitive topics, the interview approach allowed for the researcher to keep the participants on topic and ensure they were not disclosing difficult information they didn't have to discuss. More direct signposting of sources of help could also be given if participants seemed particularly distressed or in need. Full ethical approval was obtained before the study commenced and the study itself was designed to limit distress but as this was still a concern given the topic area, signposting to sources of help was also included on all information sheets (see Appendices). The interviews were conducted remotely due to COVID-19 restrictions.

4.2.1 Participants and Recruitment

Participants were recruited primarily through online social media, with adverts being posted on Twitter, University of York Facebook groups and Discord servers. Recruitment criteria involved:

- Being 18+
- Identifying as having or previously had persistent low mood
- Playing digital games of any kind (including mobile games)

It was decided early on that allowing participants to self-identify as having persistent low mood would be sufficient to address the research aims of the current work, without the need for a formal diagnosis of depression or a related mood condition. The main reason for this was that the focus was on exploring the experience of persistent low mood and so if someone felt they were experiencing persistent low mood, that would be enough to offer their perspectives. An official diagnosis or measure of symptoms would not necessarily add anything to the results as the qualitative nature of this work means that generalisations to other contexts are not the goal. Additionally, many people with depression struggle to get formal diagnoses (Handy et al, 2022) and excluding these people from the study would not offer any real benefits to the study design. One issue with recruitment was participants expressing concern that their mood might not be 'bad enough' which led to the use of the term 'persistent low mood' rather than depression. When asked during interviews, many participants self-identified as having had depression for years prior to the study but were still

worried they somehow did not 'suffer enough' to be included. Many people with depression struggle to acknowledge their own suffering, downplay symptoms or compare themselves to others negatively (eg. Brownhill et al, 2002; Esposito et al, 2024) and so the current study was designed to try and mitigate these tendencies in order to improve participant comfort and encourage participation.

In total 20 participants were recruited, with 2 being excluded from the final analysis due to poor quality of recordings making transcription difficult. Therefore a total of 18 participants were included in the final analysis.

For the initial three participants, the interviews were treated as a pilot study to ensure that the questions were eliciting the correct information and to build interviewing technique. These interviews were included in the final study as there were no identifiable problems with how the interviews were conducted and participants fulfilled the recruitment criteria and had given full consent to being included in the final sample.

The only key difference between the first three participants and the other seventeen was that the first three were asked specifically about their occupations whereas the other participants were merely asked to introduce themselves. For this study, participants were asked to self-identify with only age and name being asked for directly. This approach was adopted to allow participants to offer up information they felt was pertinent or important to the study and that they felt comfortable sharing. There are many factors of a person's life which might provide additional context for qualitative analysis, and the focus on gender or job has often been unreasonably emphasised by the literature with little theoretical justification outside of it being quantitative convention (Morse, 2008). It is worth mentioning that only one participant offered up their gender whilst thirteen mentioned their occupation. This could be due to people expecting their gender to be evident as they were on camera.

Age was collected for two reasons. Firstly, as an extra check that participants fulfilled the age requirement of being over 18. Secondly, some gaming studies looking at depressive symptoms focus exclusively on under 25s and so this information seemed worth collecting in case it became of note after analysis. Of the demographics collected, the mean age of participants was 25.94 and the range was 18-39. One participant's age was not collected due to human error.

Thirteen participants reported their occupation. The majority of the sample were students of some kind (N=8) which included undergraduate, masters and PhD students. The other occupations reported included working for a game developer (N=3) or working in an education setting (N=2). The full list of occupations can be seen in **Table A.2** (Appendices).

The only other information disclosed by participants was that almost every participant said that they had been playing games for several years, and several also reaffirmed that they suffered from persistent low mood. No exact details were given in these circumstances but

most said that both their gaming and low mood had been a part of their lives since early teenagehood.

There was also a huge range of types of games and games titles mentioned by participants. The most common games were Stardew Valley (N=9), Animal Crossing (N=5), Pokemon (N=5) and Overwatch (N=4). In total, 96 different game titles were mentioned, though some games were also grouped if they were in the same series and gameplay did not differ drastically (Assassin's Creed for example). Often participants would not specify beyond the franchise if they were larger series of games.

4.2.2 Procedure

Before the interviews, information and consent sheets were sent out via email or Discord to all participants. The consent forms had to be emailed back with a signature from the participant before the interviews commenced.

Interviews were conducted through Google Meet due to the ability to store the recordings on the university drive directly. It is also an accessible form of video calls, with no need to download an additional program or app. Participants were sent a meeting link when they signed up in the form of a calendar invite.

When the interview began, participants were informed that they were about to be recorded after initial greetings. Once the recording began, a verbal consent to the interview was obtained and the participant was reminded of their right to withdraw or not answer a question if they wished. Participants were then asked to introduce themselves using whatever descriptors they wanted (with the exception of the first three participants, as described previously).

During the interview, 10 guiding questions were planned. These were as follows:

1. What kinds of games do you play?
2. Why do you like playing these games?
3. When do you play games?
4. Do you think you play differently when experiencing a persistent low mood? If so, how?
5. How do you feel when you're playing?
6. How do you feel after playing a game?
7. Do you think your life would be different without games? If so, how?
8. Do you feel gaming gets in the way of other things in your life?
9. Do you feel gaming helps with other aspects of your life?
10. What does gaming mean to you?

As the interview was semi-structured, the exact wording and timing of the questions sometimes changed depending on the direction the conversation had taken. Participants were also asked at the end if there was anything else they wanted to say which hadn't been covered. Each participant was asked to allow an hour for the interview. The average length of an interview was ~30 minutes, with a range of 16-50 minutes in length.

Full ethical approval was obtained before the study commenced. In general, participants did not appear to be distressed by the questions or the discussion which was happening around their persistent low mood. On the rare occasion a participant seemed potentially distressed, they were verbally signposted at the end of the interview to potential sources of help. These services were also included on the information sheet sent to all participants.

A few interviews were halted due to outside interruptions, such as personal phone calls. In these cases, recordings were not paused but these sections were removed from the transcripts to protect personal details. All interviews with interruptions were resumed after the interruption had been dealt with.

At the end of the interviews, participants were thanked for their time and informed of when they would receive payment. Payment consisted of a £10 Amazon voucher. After this, the recordings were stopped after a verbal confirmation from the participant that the interview had ended.

4.2.3 Transcription

Interviews were initially transcribed using an online research-based transcription service compliant with the GDPR. This program created a rough transcription file which was then copied into a Google Document and manually edited to ensure accuracy and anonymisation. The initial introduction and closing statements were not edited for accuracy due to their irrelevance to analysis.

At this stage, participants were also given participant codes to protect their identities. Numbers were randomly generated between 1-100 for each participant and assigned. These were later changed to gender-neutral pseudonyms to better humanise participants, although there is some debate about this practice in qualitative research (Deakin-Smith et al, 2024). Names were chosen to be gender-neutral to reflect that gender was not asked about explicitly, and names were created using a random gender neutral name generator (no longer available). All pseudonyms chosen were English/Western names which in hindsight did not match the origins of all original participants names, though it was appropriate for all but one.

Further anonymisation occurred during manual transcription, though this was minimal. If a participant said something too identifying, then part of the phrase was removed

(eg. removing the name of a country a participant went to on their gap year) but the rest of the statement and the sentiment were kept intact.

Sometimes nonverbal features were transcribed, such as indicating sarcasm with a (!) symbol. Additionally, laughter was transcribed as [laughs] and if there was a long pause then that was also indicated. Any speech which could not be clearly discerned was highlighted, with the best approximation being typed. No other changes were made during transcription, with repetition and verbal mistakes being kept in.

Once fully transcribed, files were imported into MAXQDA for analysis.

4.2.4 Analysis

Reflexive Thematic Analysis (Clarke & Braun, 2013; Braun & Clarke, 2019) is a method which involves actively creating themes from a set of qualitative data and grouping them by meaning in relation to the research questions. This method was chosen to analyse the data as the focus of the research questions was to identify patterns of meaning around the player experience of persistent low mood players. Additionally, the focus on the role of the researcher and theme creation as an active process seemed appropriate given that the researcher is both a gamer and has a background in mental health, meaning that certain biases were inevitable. A reflective approach encourages the acknowledgement of these biases and how they might impact the work in a transparent manner. Rather than being a weakness, the perspective of the researcher is utilised as a tool to interpret the data.

With this in mind, a brief statement of positionality will be provided. I am a lifelong gamer and someone who holds the belief that games are a valuable source of good in many people's lives. When this work began I had no personal experience with persistent low mood but since 2021, I have experienced seasonal depression for several months each year. I have experienced other mental health conditions since adolescence with strong symptoms of anxiety and OCD. Additionally I am someone who has personally found games very useful during difficult times in my life. These experiences may lead me to personally emphasise the good gaming can do, although an exploratory design was chosen deliberately to try and take a balanced approach to the research questions. My experiences with mental health led me to have a lot of empathy for my participants and it is my belief that this strengthens my approach to interviews as I feel able to connect with my participants. I also believe that my knowledge and experience of games also encouraged participants to provide more detail and respond enthusiastically to questions during the interviews.

The other aspect of my personal background is my history with mental health study and research. I completed a MSc in Foundations in Clinical Psychology and a BSc in Psychology, both of which gave me academic knowledge of persistent low mood. Clinical Psychology in particular encourages a 'thoughts-based' focus when it comes to studying persistent low mood which has led me to choose a study design which focuses on exploring

someone's perspective of their own gameplay and mental health. Additionally, I have engaged with several practice therapy sessions in a counselling-style format which I also believe has influenced my interview style as I opt for open questions wherever I can and Q7 (Do you think your life would be different without games? If so, how?) is directly adapted from a counselling technique question.

In order to encourage reflexivity and transparency, several steps were taken. During the transcription phase, notes were made after each interview had been transcribed with a summary of my initial thoughts about the data written in a journal style. Note-keeping is a technique often used with Grounded Theory (Montgomery & Bailey, 2007) but can be used in multiple qualitative approaches to facilitate reflexivity (McGrath, 2021). After each round of coding, discussions were held with supervisors to talk about the developing codes and how they might fit into the wider picture. These discussions were particularly useful for staying grounded in the data and avoiding making premature assumptions. Finally, diagrams and other visualisation tools were used at various stages (see below) which explored different combinations of codes and meanings and helped solidify the development of the final themes.

The steps followed for the analysis were: transcription, familiarisation, initial coding, two additional iterations of coding, theme generation, theme solidification and finally theme naming.

For the familiarisation state of reflexive thematic analysis, all transcriptions were read and initial notes were made on patterns or thoughts which occurred. After this initial readthrough, complete coding began. Codes were organised under the following headings:

- Game titles (eg. Stardew Valley)
- Game types (eg. RPG)
- Attitudes/fits into life (eg. Games intricately woven into life)
- Feelings (eg. Relaxation)
- Why (eg. Consistent progress)
- When (eg. Post-work reward)
- Low mood changes (eg. Accentuates guilt)

Many codes were in vivo in the initial first pass. Codes were initially organised based on the sentiment of the quote, with little concern for potential overlap. For example, if a participant talked about feeling relaxed then this was coded differently to someone describing a game as appealing due to being relaxing. These overlaps were later tidied up in the second and third coding passes, to make sure codes were conceptually different enough from each other to be capturing different things.

The next stage was to generate initial themes. At this point in the analysis, there were several patterns which already seemed like they were linked and so quotes were pulled from these codes and related codes/patterns were examined. At this stage, mindmaps were created with different codes put at the centre of them to examine what might be the core of each

pattern. Another exercise was to start with a specific game type (eg. strategy) and see what codes commonly came up in relation to that game type.

At this stage, 7 preliminary themes were developed and written up as a draft. After review and discussion with supervisors, these were condensed down into 5 themes. One theme was dropped entirely (focused around negative attitudes towards gaming) as the key points were covered in other themes and it was not strong enough on its own to exist as a separate theme. Two themes were merged (gaming as a way of shaping identity and gaming as a valued part of life) as there was a lot of overlap in the expression of these themes and it was decided they were part of the same overall concept.

When it came to naming themes, all themes were named and renamed multiple times. A brainstorming session was held with supervisors and names were finalised after this, with the themes being written up again as a final draft.

4.3 Results

As stated above, there were four main research questions:

1. What kinds of games do people with persistent low mood play?
2. When do people with persistent low mood play games?
3. Why do people with persistent low mood play games?
4. How do people with persistent low mood feel about their gameplay (in terms of both actual moods and attitudes)?

Thematic analysis resulted in 5 key themes which can be seen in **Table 2.1**.

Theme	Research Questions
Finding consolation in predictable experiences	1 & 3
Finding a focus in engaging games	1 & 3
Gaining a sense of success	3 & 4
Valuing games and what they can offer	4
Exacerbating the negative aspects of gaming	4

Table 2.1: An overview of each theme and what research question that theme helps address

For RQ 2, interviews were coded for when gaming occurred but there were no clear unique patterns to the codes based around meaning. Participants gave answers to this question mostly focused on the timing of gaming with the most common answers being that people

played games around work or other obligations, either to prepare for the day or as a post-work reward. Some participants reported finding it difficult to stop playing if they felt their low mood symptoms were particularly bad, but this is discussed in Theme 5 (Exacerbating the negative aspects of gaming). Other contextual aspects of 'when' someone might play a game were similarly covered by other codes and research questions, such as playing after a stressful event/task or playing to relax after work. Therefore, RQ 2 is dropped from this point forwards as it did not add anything additional to the themes in terms of contextual factors and temporal factors were largely based around people's schedules rather than giving insight into the player experience of persistent low mood

For each theme, quotes are included along with participant numbers. These quotes have been kept intact for the most part. If a quote has been edited, this is indicated by a '[...]' symbol. Edits were made either for brevity's sake or to remove unnecessary repetition, but retain the overall meaning of the quote.

4.3.1 Finding Consolation in Predictable Experiences

This theme describes how players during a period of particularly low mood had a tendency to desire 'low effort' games which didn't demand much from them in terms of energy or engagement. The key element these games had in common was that they were easy to engage with and could be picked up without much preparation or thought. There was also an element of consistency and predictability being part of the appeal, often resulting in a very repetitive playstyle whereby the participant was playing almost on 'autopilot':

'I would definitely say that the lower my mood, the more basic the game I play, like the more arrhythmic is not the right word...repetitive? So I found that games like Stardew Valley, Animal Crossing, Pokemon my mobile games, the games where I can just literally stop thinking, I tend to play those most when I'm at a really low mood and I tend to play them in a way that's quite, quite autopilot. You know, it's a way to fill, fill time.' Leslie.

Repetitiveness results in a predictability which allows participants to know exactly what kind of gaming experience they would get from playing. Predictability wasn't always necessarily a positive experience (in fact, it was often neutral) but it was seen as preferable to experiences described as 'stressful' or demanding high energy:

'But yes, Stardew, I think the reason I go to that one a lot when I'm in a depressive bout or, or whatever is because it it's very repetitive. It's very rare that you're going to have like something unknown happen.' Jo.

A lack of stress or pressure was frequently linked to the act of creating in a game as well, such as Jordan who described how they:

'tend to play in a style that is more kind of repetitive. So like in Terraria, for example, I'm more likely to build something in Terraria because that's very low stakes. There's no enemies, there's no fighting, there's nothing at all to put a pressure on my time, except I want to make something'.

Though simulators were most commonly associated with repetitive play, the type of game participants chose seemed to be individual preference. Even types of games usually thought of as high engagement, such as action games, facilitated this predictable play:

'Like Diablo, you can just kind of put yourself in a dungeon over and over again and just see if you get anything better. Or I used to play like Elder Scrolls online, which is kind of similar to World of Warcraft, and there's so many storylines like good writing in it, but I would just put myself in dungeons or there would just be like world events where you just kill the same things over and over again.' Drew.

Along with repetitive mechanics and the ability to play on 'autopilot', there is also the element of consistent feedback. Whether you are building a house or killing enemies, there is feedback the game will give you to indicate something has happened in response to an action. The difference between this and a desire for success is twofold: firstly, the feedback does not have to indicate 'progress' in a sense of achieving anything or improving a behaviour. The feedback merely indicates that you have done something with your time and have affected the virtual space in some way. Secondly, there is a distinct lack of strong emotion, both in terms of excitement and/or frustration. Achievement is often associated with the excitement of a challenge or the frustration that you have failed, whereas this kind of repetitive action has no meaningful fail state. The tasks are easy for the participant and if they fail, there is nothing lost to them personally (even if there arguably is a loss effect in the game).

This avoidance of loss can be seen by some participants deliberately playing competitive modes that wouldn't affect their rank when they were in a lower mood period. There is an element of avoiding risk but also the implication that 'failure' in these circumstances is not significant to the participant:

'I'd say I played different aspects of those, for example, like I'll, I'll play, like if I'm in a low mood, I'll play less relevant game modes. So for example, in Rocket League, my best rank is like a one v one, but I won't play one v one if I'm in a low mood, cause I know I'll be awful. So I'll play like three v three because I don't really care about my rank that much.', Alex.

There was also a general idea of some games requiring more commitment than others. In these cases, it was often reported in the context of players avoiding certain games when they were feeling low as they felt like they should be saved for times when they had more energy or would enjoy it more. These were often new games they hadn't played before, and this often went back to the desire for predictable experiences:

'Cause like, you know, starting new games, kind of a commitment as well. And having like the band- emotion, the brain bandwidth I guess, to playing a sort of story-focused game sometimes comes and goes. So it's kind of, you know, up in the air a bit' Robin

'I don't tend to play new games if I'm in a low mood spell. I will go back to ones that I know again, because that lack of stress, that familiarity really helps.' Jordan.

Overall, this theme highlights a desire for players with low mood to stick to familiar, predictable gaming experiences when their mood or energy levels are too low for a gaming experience which demands something from them.

4.3.2 Finding a focus in engaging games

The second theme describes how some participants seemed to favour games which they could fully immerse themselves in and that would hold their attention. When mood was low but energy levels were sufficient, these games were favoured due to their ability to distract participants from their low moods. Energy levels seem to be the distinguishing factor here as these games demand something from the player, in contrast to the low demand games of Theme 1. One type of game which fulfilled this role was a heavily story-focused game, as described by Robin:

'so I really like Night in the Woods it's, it's I really rate the game. I think a lot of it is to do with the fact that it's a very, very story-focused game. It's a very engaging game. It's very focused on plot, characters, story. Like gameplay-wise it isn't necessarily the most involved I'm going to say, cause it's not particularly extravagant control wise or game-mechanics wise, but yeah, it's, for me, at least it's the story, the progression, it's finding out what happens is that sort of thing that's compelling and gripping in that sort of way.'.

Numerous participants described being able to be completely absorbed by a good story and feeling bonded to fictional characters and there seemed to be two elements to this. Firstly, the act of being absorbed by a story served as a strong distraction from the low mood in a way that a more repetitive game could not.

'And I feel like I gravitate a lot towards more sort of the RPG type games in that circumstance because it's less cause like [...] [Football Manager]'s a more automated process that I sort of don't tend to have full concentration on at all points. Whereas that tends to not be distracting enough, I guess, when I'm having sort of persistent low mood'. Robin

Secondly, there was the appeal of a fictional world being better than their current situation or a fictional world being more attractive. Leslie describes a particularly extreme version of this:

'I mean, yeah, I was, I was in a pretty bad place at the time and there was a feeling of, well, my life is shit compared to this, like I I don't want to leave these characters. I mean the story, the, the thing I always tell people is Dragon Age Inquisition made me realize I had to break up with my partner. Like I loved my ingame relationship more than I loved them.'

This kind of connection was frequently associated with a strong emotional reaction when the game ended ('Danganronpa V3 and Night in the Woods, wrecked me emotionally. Like oh my god, wrecked me emotionally' Robin). Often the emotional response occurred during periods of low mood specifically, suggesting the low mood contributed at least somewhat to the deep emotional connection a participant had with a game.

The active nature of gaming seemed to be a more appealing way for people in a low mood to consume narrative stories compared to other forms of media. Sometimes this was explicitly linked to comorbid issues of attention and was cited as a unique feature of games when compared to other, more passive forms of media:

'As someone with dyspraxia who has attention problems, having the story as a reward as opposed to a thing which is going on in the background, like with television, is a lot more accessible to me in a weird way by gating off the story, suddenly, and treating it as a reward, it's a lot easier for me to consume and remember it.' Nic.

The active nature of gaming was also discussed in relation to energy levels:

'there's just something different about games from reading books or watching movies. It's, I guess it's the interactivity in the way it can, you can, it can hit so many different emotions and feelings and reactions in you that I feel like you don't get out of a movie or-there's also, I don't focus very well. So having video games means I can enjoy things whilst being sort of engaged with them actively. I don't really watch a lot of movies either because I get tired or can't focus.' Jamie.

As well as narrative-driven games, games with strong strategic elements also facilitated this desire for high engagement. RPGs were often favoured as the statistical strategy gave participants something to focus on:

'You have control over like the team building and then sort of how, what you do with them. So like Pokemon, you get to pick the moves, Genshin, you build characters with different, like you can boost their stats using different stuff. And so it's, it's sort of got that element of, you have to sort of think about what you're building and how you're playing that I really enjoy.' Sam.

Participants also seemed to desire games which offered high engagement which continued beyond the gaming experience itself. Several participants discussed reading about gaming lore:

'I do find that if I am like quite stressed or at a low point, I tend to become way more obsessive, you know, so like, I will just like try and find out everything I possibly can about all the mechanics of the game or, you know, like read all the lore and just like, yeah, become quite obsessed with it in a way that I wouldn't normally, if I wasn't experiencing low mood at the time.' Leslie

Or thinking about strategy to an excessive amount:

'And I'll, I'll, I'll sort of replay the story in my head. I'll replay the character progression in my, in my head as well, and think about, think about the stats and how I'll level up next time and what equipment I might use as well. So, so I take it quite seriously [laughter]' Ash.

This was common among competitive or social gamers in particular, and while it's not unusual for competitive gamers to strategise with their teammates, this behaviour was explicitly described by participants as being exacerbated by low mood.

'it was definitely like a fixation at the time, like Overwatch and everything. [...] there wasn't there wasn't really, like, as you said, like an end point of like, to kind of, cause like we'd all be on Discord. We'd all be like watching like VODs and stuff. So like we'd all be kind of trying to work on our game, like all the time. [...] Part of it is it's definitely like the, the mood I was in. It was like, you know, they, you know, it should have been, I shouldn't have been entirely fixated on it, like but that's kind of where I was.' Taylor

This exacerbation effect is discussed in more detail in a later theme.

In summary, this theme suggests that when people with low mood have the energy available to do so, they favour gaming experiences they can throw themselves into and that will completely capture their attention and focus. Story-driven games and strategy games are both appealing due to their ability to offer this focus, be it through an engaging story or through complex mechanics which require thought and attention.

4.3.3 Gaining a sense of success

This theme describes how one of the appeals of gaming for participants was the feeling of success they could achieve through games. While not necessarily unique to a low mood population, it did seem to be potentially more significant to this population due to a lack of success in other areas of their lives. In this context, gaming could be seen as an easy way of getting positive, visible feedback that participants might not get elsewhere.

One example of this was a tendency among competitive gamers to focus on the ability of games as a pathway to self-improvement. Riley describes how gaming allowed them to discover this mindset and the effect on their sense of identity:

'the way I play games now with the competitive mindset and improving, it's always been there, but I've only become aware of it ever since I started playing games competitively. So without the outlet [...] I'm not sure if I would have even been the same person, if that makes any sense? It's not necessarily that games themselves changed who I am, but they gave me a path to kind of develop this sense of accomplishment and self-improvement'.

For players of competitive games, there seemed to be a strong link between their enjoyment of gaming and their ability to feel like they were succeeding at a game. Having a measurable sense of progression was usually the key motivation given for playing competitively. Competitive gaming also offered this chance for achievement for participants who didn't have another way to experience it to the same extent, as described by Nic:

'I grew up as someone who was decidedly average all the way through primary school. I got reasonable grades and was considered a smart kid, but like my talent was never, I was never top of the top class. I was just above the average grade. And then all of a sudden, a few years later, like I found things that I'm good at. So I, you know, I've topped multiple tournaments. Not great tops, but I've still done incredibly well.'

Aside from competitive games, the other way participants seemed to get this feeling of achievement was through playing games with a strong strategy element, such as deckbuilding games or RPGs where you are required to design a team. When discussing these games, participants would often focus on the satisfaction of pulling off a successful strategy:

'so it's almost like mathematical, there's like a kind of statistical strategy to, to card games that I think I enjoy. And yeah, if I'm, if I'm playing a single player game, it's usually a card game and it's usually for that reason, Oh, I know how to articulate it. It's like basically I just want to feel big brain, you know?', Adrian.

This was sometimes linked to behaviour discussed in Theme 2, whereby participants would strategise beyond the play session as described by Ash:

'And I'll, I'll, I'll sort of replay the story in my head. I'll replay the character progression in my, in my head as well, and think about, think about the stats and how I'll level up next time and what equipment I might use as well. So, so I take it quite seriously [laughter]'.

While neither of these examples so far are necessarily unique to low mood populations, there was evidence to suggest that a sense of achievement might be particularly important to participants when they were experiencing low mood:

'When you're going through like a low mood time, when you're going through a bout of depression or whatever, it's very easy to feel like you're not accomplishing anything. So I

think personally, the reason I think these games resonate with me is because they give you that sense of accomplishment.' Jo

One final element related to this theme was the idea that games provided a route for social success. A frequent topic of conversation for participants was feeling alienated growing up, with games providing a respite from that. Rory mentioned how games helped them cope with being bullied:

'early teens. I, I struggled a lot with my self esteem and kind of the social aspect at school. I had quite a high pitched voice that a lot of people were kind of almost bullying me for, especially some people online, but through games, I was allowed to find communities and people who were the same age as me, who didn't really care about that stuff.'.

Alex mentioned how being part of the competitive gamer community made them feel like they belonged to something exclusive and socially desirable:

'I feel like I'm part of a club that like is, I dunno, I just feel like I'm part of something. Like, I mean I'm in a community where like, I can talk to my friends about gaming and like they won't, people around me won't really know what we're talking about, I can talk about [...]'Oh, I just won this CS game last night' and like people will be like 'What the hell is that?' and I kind of feel like I'm part of like some form of lingo that people might not know. And I guess like maybe I interpret the room wrong, but I kind of feel like they, not are jealous that they don't know what I'm talking about, but they might be a bit interested and I kind of feel a bit like quirky, I guess. Gives me a bit of an identity that I might not have, I might not have otherwise.'.

Overall, it seems that for low mood players, games offer a chance to achieve and measure success which is both accessible and appealing to them. They may also provide the opportunity for success which might not have been attained otherwise.

4.3.4 Valuing games and what they can offer

This theme covers how in general, participants had an overall positive attitude towards gaming, citing many psychological and emotional benefits. Among these benefits, there were three core aspects: social play, identity formation and an emphasis on games being a good vessel for mood improvement.

Social Play

The unique ability for games to offer social connections was often talked about by participants as a huge benefit, both of games and to their mood:

'Jo:

One of the big things that helped me come out of that last bout [of depression] was that as well as some counselling I was able to get, making a concerted effort to like game with people, again, like finding games I could play with my mates again [..] like, or starting up ones that we used to play, but hadn't in ages and just, you know, generally that's how I was able to sort of like bring myself back round.

Researcher:

Yeah. Yeah. So gaming helped a lot with that?

Jo:

Yeah, gaming specifically with other people though. The gaming on my own wasn't necessarily, but actually [...] being able to interact with something in real time with other people was a real kind of like blessing. You know, cause we obviously we can't be up in real life, but you know, if we're playing like CFDs or something, you know, we're both, we're both in the moment and like present together'

This quote highlights what many participants reported, that there is something unique about games and the kinds of social interactions you can have around games that you can't have through other forms of media:

'You know, you are solving a problem together with someone and that is, you know, sometimes the other person is the problem, right? Like there's adversarial games and that's, that's also very interesting and you can come to know the way that someone thinks that way. And then there's like an intimacy there as well. There's there are a lot of dimensions, I guess, because games can be so many different things. There are a lot of ways that games can be enriching.' Adrian.

Social play was often connected to better emotional wellbeing for participants, with many citing gaming as something which allowed them to connect with family members or other people which they might not have been able to otherwise, with these subsequent relationships improving their wellbeing:

'Like it just, it fills so many facets of my life like from the way that I can connect with my youngest siblings who are 12 years younger than me, all the way to how I can make new friends.' Sam

'I can direct every single one of my major friendships and friend circles as a result of me playing these games' Nic

Identity Formation

Many participants asserted that they had been gamers their whole life, and the importance of games in shaping their sense of identity and self. This links a little bit to the social success mentioned in Theme 4 where participants saw the identity of 'being a gamer' as something valuable, but this is also more about games offering a safe way for people to

experiment and discover their own sense of identity. This can particularly be seen with queer gamers:

'For certain context, I grew up in a really kind of like homophobic area. You know, I grew up in a time where it was still fun to call people gay and laugh at them and, you know, whatever. So I always repressed the fact that I'm bisexual[...]This was actually a really well done, really well written character, and it allowed me to kind of explore that side of myself that I hadn't been able to in, in real life. And, you know, to some extent still haven't been because like I've met, I've been married, I'm married now and stuff so, but through virtu- through the virtual game and stuff, I was able to kind of understand my sexuality better. And it was like a safe space.'. Jo

Games were also good tools for people to experiment freely with concepts that otherwise would be difficult to explore, such as morality:

'I do a lot of human rights work and I always play these kind of like hyper moral characters. [...] And for me growing, like in my teens and twenties, it was a way of me really experimenting with my morality a little bit and sort of being, you know, particularly when a story is told well, and it shows-because they have these like extreme situations that you're probably never going to face, to be able to test your morality in those situations has actually been really beneficial for my work and to put myself like, literally you are putting yourself in somebody else's stories sometimes, right? It's not like reading a book, like you are controlling and, and living this person's story. [...] games where you sort of play these, like God of War where you play difficult characters, it has very genuinely made me think about my own work differently.' Leslie

As with the social connection of playing a game together, this quote highlights something unique about games in terms of being able to offer this experimentation. Games allow you to feel like you are embodying a character and so experimenting in a game is different than exploring different viewpoints through a film or book. This was often talked about as being very beneficial to a participant's mood and wellbeing.

Games for emotional improvement and regulation

As mentioned in Theme 1, some gaming experiences appeared to 'flatten' mood. The benefits of gaming for mood have been evident in every theme discussed so far, but there is an additional element of people with persistent low mood deliberately using games as a way of regulating their low mood:

'I think it definitely helps me switch off my brain, which I can have problems with, you know, especially with the low mood. Like if I'm, if I can get myself distracted into a game, that can kind of give me some relief from that long enough to just get my head back on straight.' Jamie.

'I mean, I think it, it kind of like makes me feel a bit like normal, I guess. [...] like if I'm in a low mood and I play a game and I finish the game, like [...] It would give you a different thing to focus on. And I feel a bit more like re reset, but not necessarily in a positive way. I do still feel like a bit like down, but I won't be down for the reason that I came on in the first place.' Alex.

Games were consistently cited as an important coping mechanism to many participants:

'I think, cause I kind of use them as a coping strategy for anxiety, which is like linked to my low mood. So yeah, I think I'd definitely struggle to cope without games for sure.' Frankie.

And coping mechanisms cropped up in relation to competitive gaming and the importance of being able to regulate your emotions in order to perform well. Participants who were competitive gamers often mentioned emotional benefits directly:

'Like a game like Valorant is like, it's really taught me to like, got a handle on like my emotions or like that kind of thing. Like, you know, it's, you know, trying to cope in a, maybe like a stressful situation and not let the emotion, you know, your emotions get the better of you.' Taylor.

This is in contrast to a period of lower mood in Taylor's life (which was when they played Overwatch) where it became harder for them to emotionally regulate:

'[I], try and aim for like keep calm kind of thing, which I wouldn't necessarily say that I would have done when I was playing Overwatch. It was kind of just like, yeah, just kind of drag go through it, like, rather than trying to restack, reset kind of thing.'

It was common for participants to play a game when they were feeling low in order to 'reset' their emotions and enable them to do other things they needed to (such as work):

'So yeah, like there is times where I'm like really addicted to the game and I'm like, I should be doing other things, like I should be working or cleaning or something, but these days I think I'm in like a healthier place with it. Like I kind of see it as like recharging my batteries. Like I take a break to play the game to make myself more efficient when I do other things. Like, yeah, if I'm getting frustrated with my writing, take a break for an hour, play a video game, I can go back and work faster. Whereas like if I just carried on trying to write, I think I probably would get nothing done and I feel awful. So yeah. I, I don't think it gets in the way at the moment, but it has, and I think that's a very conscious effort on my part to stop that from happening.' Pat.

Summary

Overall, games were viewed as having value by participants and were often a key part of their lives. Even if participants cited gaming as 'just a hobby', they would list many benefits to said hobby and spoke favourably of the 'active participation' in gaming that was absent from other hobbies, such as Youtube or watching TV. This active participation was one of the main appeals of gaming and seems to have interactions with gaming's ability to facilitate emotional regulation.

4.3.5 Exacerbating the negative aspects of gaming

This theme describes the tendency of participants to describe a more negative or less beneficial gaming experience when they were experiencing a persistent low mood compared to when they were not. One example of this is participants finding it harder to stop playing when they were experiencing a low mood:

'And certainly when I'm in yeah in a, in a lower mood period, it definitely does [get in the way]. Cause like I said, I'm just using it and I'm not doing the other things. I think, you know, there's an element of addiction of just being like, I'm just kind of sucked into playing it, an element of like just losing track of time.', Spencer.

This was linked to stronger feelings of guilt about gameplay in some situations, as described by Jo:

'Let's say I'm like bingeing a game or something because I'm in a low mood, I then will feel like I've got nothing else done and I'll feel super low more because like, yeah, there's a guilt that it it's wasted time'.

Another element was that negative emotions during play tended to affect a participant more strongly if they were in a low mood, such as frustration ('I guess like I get annoyed at things easier in the game', Alex). There was also a greater emotional response to story elements as mentioned in the previous theme. This did seem to be an overall greater intensity of emotions that wasn't just limited to negative experiences:

'I think the, the multiplayer games I play, especially competitive games. It, it feels a lot more, there's a lot more passion about whether I'm winning or losing. So if I'm winning, I'm happy, if I'm playing good, I'm happy if I'm losing, I'm not so happy.' Rory

However, participants did tend to focus more on the negative feelings when reporting these more intense emotions.

The reduced enjoyment of playing whilst in a low mood was somewhat linked to the tendency for participants to avoid playing new games in this state as, in addition to the effort required which was discussed previously, there was also a sense that the game would be enjoyed less if played in a low mood:

'I don't tend to play the big sort of AAA games when I'm, when I'm at a low mood, because I need the emotional energy. So like, that's kind of why I stopped playing Cyberpunk because I just didn't have [...] the energy to, to invest myself.' Leslie.

This in itself was often frustrating for the participant as several mentioned desiring to play certain games but not feeling able to due to their mood, as described by Ash:

'When I play those games, I want to be fully enjoying them. And if I'm not fully enjoying them, I feel like I'm losing out on the experience as well and don't, don't see the point in, and I become quite kind of frustrated with myself.'

In contrast to participants experiencing emotions more strongly during a low mood period, some reported a 'flattening' of emotions instead. This was reported as both a negative thing for the participant, and as a more beneficial or neutral effect (as mentioned in the last theme):

'I think like when I'm doing less well than I am, I can find myself almost not playing for fun. I'm just playing because it's what I do [...] I'm kind of going through the motions of being me, but I'm not often deriving in a huge amount of enjoyment from the game' Spencer

'It would give you a different thing to focus on. And I feel a bit more like re reset, but not necessarily in a positive way. I do still feel like a bit like down, but I won't be down for the reason that I came on in the first place.' Alex

Although this flattening can seem beneficial to the participant, it is included as part of the theme of low mood accentuating negative experiences of gaming as it does suggest less enjoyment of gaming itself compared to when participants play in a more positive mood.

Overall, gaming in a low mood seems to be a more negative or less positive experience than 'normal' gaming. Emotions are more intense, negative associations such a guilt or more obsessive playstyles are enhanced and participants seem aware of this and subsequently alter their gameplay choices to try to avoid these negative effects.

4.4 Discussion

Overall, 5 key themes were developed surrounding persistent low mood and gaming habits. These themes were: 1) Finding consolation in predictable experiences, 2) Finding a focus in engaging games, 3) Gaining a sense of success, 4) Valuing games and what they can offer and 5) Exacerbating the negative aspects of gaming. These themes and how they relate to patterns of energy and play can be seen in **Figure 2.1**.

Figure 2.1: An overview of the themes and general pattern of play seen reported by participants with persistent low mood, applying the terms used by participants during the study itself

These themes suggest a potential pattern of behaviour within these participants which could be valuable when considering the wider scope, such as gaming disorder or designing games for improving wellbeing. It appears that during periods of particularly low mood, gamers will reach for a predictable, familiar game which is low stakes and will occupy their minds without requiring huge amounts of effort from them. During this time, people often report having a less enjoyable or beneficial gaming experience, and struggle more with the negative aspects of gaming such as playing more than they intended. When emotional energy is sufficient, players with low mood report seeking out engaging games that offer them a lot to think about and can help distract them from their negative thoughts. In general, gaming can offer many emotional benefits and is seen as a valuable part of players' lives.

4.4.1 What kinds of games do people with persistent low mood play?

In terms of kinds of games participants played, this can be further divided into 1) appealing game types and 2) appealing gameplay styles or features. Many different types of game were mentioned, with simulation, strategy, RPG and competitive shooters being among the most common. The key appealing game types or aspects participants mentioned included a sense of progression, repetitive play, engaging story or strategy, creativity and social play. Links between these aspects and the appealing game types can be made, as seen in **Figure 2.2**.

Strategy	Story-focused	Simulation	Competitive
• Repetitive action • Feeling of success • Obsessive strategising • Creativity	• Emotional response • Engaging • Escapism/being a character	• Repetitive action • Consistent progress • Creativity	• Social aspect • Feeling of success • Consistent progress • Obsessive strategising • Repetitive action
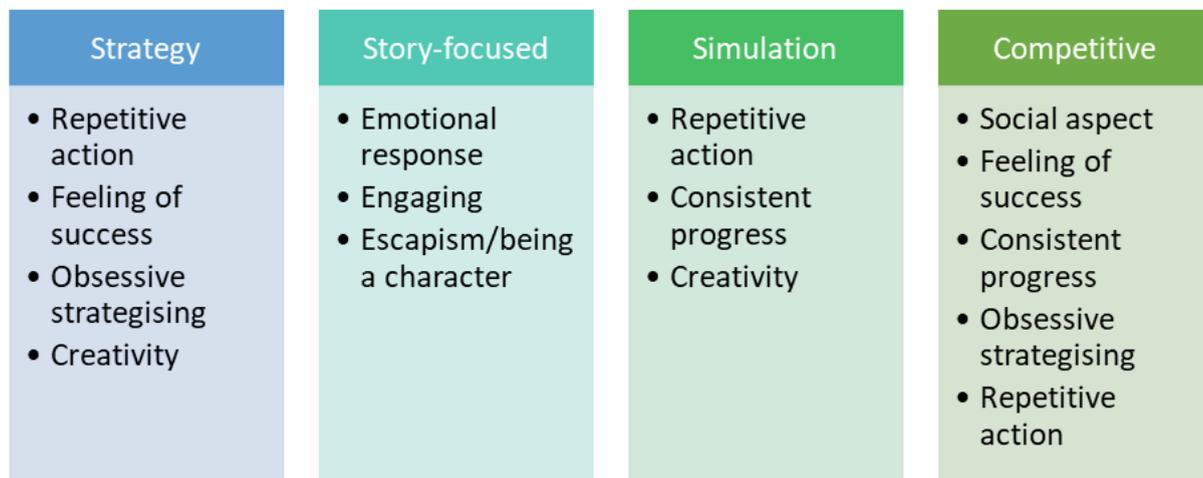
Figure 2.2: A diagram of key game genres and their associated appeal for participants. For this diagram, RPGs can be considered a mix of strategy and story-focused games

Stardew Valley was the most common game (mentioned by 9 participants) and it can be seen to facilitate many of the appealing aspects mentioned throughout the study. Gameplay is relatively self-paced, with things like crops growing and bundles to complete offering a clear sense of progression and many of the tasks in-game are repetitive and predictable. Additionally, though it is less story/strategy focused than some other games mentioned, it does offer some form of emotional connection to characters through the dating sim aspect and the running of the farm can be 'optimised' strategically. Stardew Valley can also be seen to have some overlap with Animal Crossing in terms of mechanics, aesthetic style and pacing. From Study 1, participants mentioned that the aesthetic features and pacing of gameplay in Animal Crossing was relaxing and offered a sense of escapism during the pandemic when they were feeling stressed or anxious. These results line up with other findings from the literature which suggests that the temporal pacing of progress in Animal Crossing was key in fostering a sense of escapism in the general population (Borsi, 2024). Stardew Valley shares this feature, as well as offering an affirming environment with positive social interaction which may be beneficial to wellbeing as well (Gunderman, 2024).

RPGs have been discussed in the literature previously by Steadman et al (2014) in the context of them potentially having therapeutic applications. RPGs may be well-suited to challenge thinking patterns due to the strong identification with characters, similar to how Leslie talked about challenging their sense of morality through playing as different characters in God of War. Strategy games were also highlighted by Steadman et al for their potential to engage executive functioning, something which has been linked to the benefits of gaming extensively in literature with mixed conclusions (Bediou et al, 2018). Similarities can also be

drawn with Study 1, where participants reported the emotional benefits of feeling cognitively stimulated and challenged. These aspects seemed to facilitate escapism, specifically distracting participants from stressful or unpleasant thoughts and offering a sense of absorption and immersion.

Competitive games such as FPSs may also offer this sense of engagement due to their fast-paced nature. There is also the element of achievement which will be discussed more below, but has links to positive emotions when it comes to competitive play (Rieger et al, 2014; Weibel et al, 2008). Often the games discussed by participants had strong social elements such as teamwork or associated esports communities. The importance of social play was touched upon in Study 1 and will also be discussed further below.

Though not a traditional 'type' of game, many participants mentioned how when they were experiencing particularly strong symptoms of low mood, they had a desire for a particular kind of passive gaming experience with games that were familiar to them. Though not linked by a common genre, these games were defined by being a repetitive and predictable experience to the player. Actions taken in the game could vary from combat to building to farming, but they were all perceived similarly by participants regardless. Therefore it may be less about the types of games themselves and more about what the game can offer a player, something that will be explored further in the next section. Though these choices in games might not be unique to a persistent low mood population, what these games offer persistent low mood players might be especially desirable which brings us to motivations for play.

4.4.2 Why do people with persistent low mood play games?

As with the previous RQ, there are two ways to divide this question down further: 1) 'Why does someone with persistent low mood play a game at all?' and 2) 'Why does someone with persistent low mood select specific games?'. To answer the latter further than has already been discussed in the above RQ, we must first explore the former.

In terms of 'Why do people with persistent low mood play games at all?', the themes suggest some key motivations. Firstly, participants seemed to use gaming as a form of emotional regulation to 'reset' during periods of low mood. While gaming was able to boost the mood of participants to a positive one on some occasions, a symptom of depression is an inability to enjoy hobbies (Watson et al, 2020) and this was sometimes mentioned by participants. However, even when gaming didn't make participants feel positively, it still seemed able to 'lift' their mood back to a neutral one. Generally participants seemed aware of this and reported using gaming in this way to counter their low mood, which mimics aspects of Mood Management Theory (Zillman, 1988) and emotional regulation literature. In comparison with Study 1, there are some similarities in that many participants reported a mixed effect of gaming on their mood with the positives outweighing the benefits. However, there does not seem to be this same expression of 'mood flattening' as was reported here. This discrepancy could be due to the different methods of data collection as the survey responses were shorter and may have just failed to collect this detail, but given the

association between anhedonia and depression (Watson et al, 2020) it does not seem unreasonable to assume this flattening of mood is related to persistent low mood specifically.

In a systematic review, Villani et al (2018) found that gamers felt more intense emotions and expressed these emotions less often than infrequent gamers, as well as having improved emotional regulation overall. The systematic review included studies focused on a general population rather than a persistent low mood one, and it is interesting to compare how the review found that gamers experienced more intense emotions whilst participants in the present study with persistent low mood had a flattening of emotions. Depression is often characterised by disordered emotional regulation (Joormann & Stanton, 2016) and specifically, deficits in cognitive control seem to be behind the emotional dysregulation. Some types of games (such as action) have been linked to improved cognitive control (Steenebergen et al, 2015), although these findings are somewhat contentious (Sala et al 2018). It is possible that playing games has a dual effect of boosting both emotional and cognitive control, or perhaps games are better suited for emotional regulation for people who already have a stronger sense of cognitive control. Either way, this self-reported use of games for emotional regulation purposes seems to be a core part of their appeal for participants with persistent low mood.

Another reason people with persistent low mood reported playing games was to have a fun, absorbing and interesting experience. Every participant talked about their love of games and how, even when there were some downsides, the positives outweigh the negatives. There was a desire when energy and motivation were high enough for participants to seek out games with engaging stories or mechanics to occupy their time and minds. In Study 1, many participants mentioned how games were able to occupy their thoughts and offer a sense of distraction and escapism. Often this was directly linked to the negative aspects of the pandemic, such as stress and anxiety and these aspects are also present in persistent low mood. Rumination can be a symptom of depression (Spasojević & Alloy, 2001) and this involves persistent focus on negative thoughts. Gaming has been linked to reduced rumination in the past (Kühn et al, 2018) and participants in the current study talked about how certain types of games were able to capture and hold attention, which seemed to prevent them from ruminating. Additionally, negative mood repair has been linked to task demand with participants sometimes self-selecting media which has an optimal level of demand for mood repair (Bowman & Tamborini, 2012; Bowman & Tamborini, 2015). In the present study, participants consciously selected media which were able to offer this distraction and cited things such as strategic elements and appealing narratives facilitating it. Fun is in itself a positive experience and therefore it makes sense that participants would seek it out actively to counter low moods.

Alongside this desire for fun and engagement however, there was a second pattern of play. This pattern seemed to specifically occur when participants felt very low, either in terms of mood or energy (or both). In these cases, participants specifically played games due to a sense of familiarity and predictability. There could be links between these desires and the mention of comfort being appealing during Study 1. Comfort as a concept can be associated with elements of self-control, peace, relief of physical symptoms and security (Pinto et al,

2017). The ability of gaming to relieve symptoms is discussed throughout this chapter and has been highlighted as a reason participants play games, either consciously or subconsciously. Participants in the current study talked about wanting games which didn't require much from them, which can be aligned with the 'peace' component of comfort to some extent. There were also elements of security, either from knowing what was going to happen in the game or from revisiting characters/environments participants were fond of. However, rather than necessarily actively seeking comfort from this passive play, participants seemed to engage with this kind of gaming almost on an autopilot. Several participants talked about gaming as 'just something I do' or in similar terms, rather than being something they were excited for and actively chose in these low mood/low energy situations.

Participants reported getting both an active sense of achievement from gaming and a more passive sense of progression. The literature examining achievement does not distinguish much between achievement and progression, but the way both are talked about by participants seems different here. In the current study, achievement was often characterised by excitement and intense emotion, whilst progression was more gradual and does not necessarily impact mood, positively or otherwise. The first pattern is supported by previous literature which has found that winning in a videogame is associated with positive moods (Rieger et al, 2014; Behnke et al, 2021). Progression is not explored much in the context of impact on mood but setting small, regular, manageable tasks is part of many Cognitive Behavioural Therapy treatments for depression (Barton et al, 2023). Structured goals may be particularly important in this regard (Barton et al, 2023), and games with the consistent sense of progression mentioned by participants in the current study offer the chance for structured goals, whether they be set by the game or the player themselves.

Early theories of depression highlight a desire for achievement and a self-critical nature as a pathway to depression (eg. Blatt & Zuroff, 1992) so it is interesting to see participants highlight achievement in games as a key motivator here, with reference to their low mood in some cases. There does not seem to be much evidence of the perfectionism associated with this pathway to depression in the data but this may be due to the fact that the focus is on videogames specifically, which are mentioned by participants as being low stakes. Indeed, some quotes seem to support the idea that videogames felt like a 'safe' place to aim for achievement without fear of failure. This idea of videogames as a 'safe place' to explore facets of mental health is echoed in other work such as with veterans playing games related to war (Carras et al, 2018) or explorations of identity in gender nonconforming individuals (Cantrell & Zhu, 2022). Indeed, some participants in the current study discussed how games were useful for exploring aspects of their sexuality without the stakes they felt in their real lives. In the case of exploring sexuality or exploring the possibility of failure, game may provide a safe option to do this.

Another way games offered participants a sense of success is through social success. Several participants mentioned how gaming provided them with a sense of community, with new friends and even things such as a shared common language. Outside of a sense of belonging, social play in itself has been found to be beneficial to mood and wellbeing (Kowert, 2015; Halbrook et al, 2019; Bowman, Rieger & Lin, 2022). A sense of social

success and belonging are similarly associated with improvements in depressive symptoms (Sargent, 2002; Cruwys, 2014) and anhedonia may be associated with loss of a sense of belonging (Watson et al, 2020). Games can offer a powerful sense of belonging (as seen by some participant's quotes) as well as opportunities for social interactions, which might make them especially suited for helping alleviate depressive symptoms in this way.

Some participants linked gaming providing them with social circles with a previous lack of success in this area, such as being bullied or finding it difficult to find like-minded people. One of the potentially limiting factors in friendships formed through gaming is that it can be problematic when gaming relationships replace in-person relationships (Kowert, 2015) but it seems that for participants in the current study, gaming instead provided them with a way of making in-person friends and did not replace another friendship circle. Given the potential ability of social support to improve symptoms of depression (Santini, 2015), gaming might be a valuable tool for people with persistent low mood when it comes to forming close social relationships. Social bonding through gaming was also a key component of the data set in Study 1 which helped demonstrate the importance of social connection during times of crisis or uncertainty. Study 1 showed that gaming could foster a sense of social connection when people were unable to meet up in person, and gaming may function similarly here to allow for people with persistent low mood to make friendships when they feel they are otherwise unable to.

In summary, people with persistent low mood appear to play games for a range of reasons such as to self-regulate moods, gain a sense of achievement, form and maintain social bonds and alleviate symptoms of low mood through engagement and distraction. These reasons often have a positive impact on their low mood and other associated symptoms of persistent low mood, such as motivation or rejection sensitivity. During periods of particularly strong symptoms, participants opted for games with predictable or familiar qualities that they did not personally find demanding to play.

4.4.3 How do people with persistent low mood feel about their gameplay in terms of actual moods?

The various ways that gaming impacted the mood of participants in the current study have already been discussed throughout the previous section in part. However, it is still useful to give an overview of how gaming affected mood specifically in participants with persistent low mood.

Firstly, participants universally reported that gaming improved their mood overall and was a positive, beneficial hobby for them. Many cited gaming as helping them through particularly tough times mentally, which is supported by research into gaming during difficult life experiences (Iacovides & Mekler, 2019). As mentioned in the previous section, even when gaming did not boost mood into a positive one, it still seemed to lift participants out of a negative state. Games were capable of sparking excitement, interest, enjoyment and a deep affection for the hobby itself, which will be explored in the next section on attitudes towards

gaming. In short, the positive effects of gaming on mood either seemed to be a mood boost or an emotional 'flattening' effect.

Participants did talk about some situations where gaming had a negative or neutral effect on their mood. The main reason participants gave for gaming not improving their mood was that they were doing particularly badly in terms of persistent low mood symptoms and gaming was unable to overcome this extreme state. In these cases, gaming was often less satisfying as a hobby and participants tended to engage with it on autopilot rather than being excited or choosing to play, which fits with the general pattern of anhedonia in depression and reduced pleasure from hobbies or activities (Watson et al, 2020). Guilt about play was often enhanced in these situations, although many participants also talked about how gaming wasn't preventing them from doing anything else despite this guilt. Guilt will also be further explored in the 'attitudes' section below in the context of the value of gaming as a hobby. Participants were often keen to highlight that they felt gaming itself was not to blame and that it did not make their mood worse compared to any other activities they might engage with. Rather than it being gaming that specifically made them feel worse (or failed to make them feel better), they framed it as they wouldn't feel good regardless and that gaming just happened to be the activity they chose to try and improve their mood.

4.4.4 How do people with persistent low mood feel about their gameplay in terms of attitudes?

The other goal of the research questions was to explore how people with persistent low mood felt *about* their gaming. The purpose of exploring this was to gain a sense of how participants viewed gaming in terms of their own lives, whether it was seen as valuable or as a potential crutch.

In terms of attitudes, participants expressed several key 'beliefs' about gaming. The first was that gaming was a valuable and rewarding hobby to have, with many participants stressing how much worse off they would be without it. Gaming was compared to other hobbies such as watching TV or reading, and praised for either being more 'engaging' than watching content or more interactive than reading. The engagement factor of gaming might make it particularly suitable for mood management (Weber et al, 2020) and mood repair (Bowman & Tamborini, 2012; Bowman & Tamborini, 2015) or for distraction purposes in terms of alleviating symptoms of persistent low mood (Joorman et al, 2007; Webb et al, 2012). Generally speaking, participants felt like they 'got more out of' gaming compared to other activities they could have chosen, with one participant likening it to the reward of competitive sports.

Related to the idea of games providing a sense of belonging, some participants discussed the concept of 'being a gamer' and what gaming meant to them in terms of their identity. This was sometimes presented as a positive thing, as a factor which supported their sense of belonging and that they were proud of. However one participant, Leslie, discussed how they didn't feel like they were 'a gamer' because of the negative associations they had with the term. Previous work has found that 'gamers' are stereotyped as unpopular, idle and

socially incompetent and that females are less likely to identify with the term (Kowert et al, 2012) which may be due to a host of associated stigmas (Kuss et al, 2022). Though gender was not asked for in the current study, Leslie did disclose they were female and that was related to their reluctance to call themselves 'a gamer'. For Leslie in particular, gaming acted as a bit of a block to their social relationships as she also mentioned how it indirectly led to a breakup and caused barriers between her and her family in terms of feeling understood by them.

Another attitude expressed towards gaming involved assessing 'the worth' of gaming as a hobby. Some participants discussed while they personally thought of gaming as valuable, they believed that society on the whole did not. Leslie mentioned how the barriers between her and her family were due to the fact that they didn't see gaming as valuable compared to her other hobby, reading. Many participants were emphatic about the value of gaming and stressed that they felt it was important to talk about it in order to counter this perceived public view. Though some talked about how gaming has become more 'acceptable' in recent years, they still expressed some uncertainty about how it was valued overall as a hobby by other people. There was an undercurrent of a fear of being judged, which may be related to the persistent low mood symptoms as depression is often associated with a higher sensitivity to social rejection (Kupferberg et al, 2016). This fear of judgement can also be seen in the hesitancy of some participants not wanting to be called 'a gamer', as they didn't want the negative traits associated with that term to be associated with them.

This view of gaming as a valuable hobby is important when considering persistent low mood because it likely has ties to guilt. Several participants expressed that while gaming did not prevent them from engaging with other activities or responsibilities for the most part, they still felt guilty sometimes about their play. This guilt about play was often tied back to an earlier point in their lives where participants felt they had less control over their gaming, either due to being a teenager or due to having worse symptoms of persistent low mood. In the latter case, there seemed to be a fear from participants of returning to that previous point, although many reiterated that their relationship with gaming was currently a positive rather than negative one overall. Guilt is a common characteristic of depression (eg. Clark et al, 1994) and depressive symptoms have been linked to excessive gaming in previous work (eg. Gema et al, 2024; Düll et al, 2024) so it makes sense to see these fears in a persistent low mood population.

Overall, the attitude towards gaming was largely positive by participants. Games were seen to enrich their lives and provide many more benefits than detriments. Gaming was compared favourably to other hobbies for being more engaging or rewarding, and also unfavourably in terms of how the hobby might be perceived by others. In terms of thinking about a persistent low mood population specifically, it is possible that fears about addiction or judgement from others might be more prevalent in this group. Games might also be valued more by this population due to the emotional and social benefits they provide.

4.4.5 Limitations and Future Directions

There are a few elements to bear in mind when considering the findings of this work and their potential wider impact. Firstly due to the nature of persistent low mood and depression, it is likely that the participant sample is skewed to exclude people suffering from severe depressive episodes as they are unlikely to sign up to a study. Though many participants reflected on periods of time where they had more severe symptoms, these reflections are impacted by time, memory and the nature of reflective insight, which may affect accuracy.

Another potential consideration is that all participants were either studying in higher education, working in education or working in the games industry. Though this is not necessarily a weakness, it is likely that participants had unique perspectives on gaming and/or mental health due to their professions. It is hard to say what influence this might have exactly but many elements of education encourage reflection, which may mean aspects of these findings are specific to this particular population. Working in the games industry might also naturally lead to a more positive view of games, although this was only the case for two participants.

When considering how gaming might interact and impact persistent low mood, this study can tell us how participants feel about their gaming in a general sense, how they think it might interact with their low mood and what kinds of gaming experiences they find desirable. However, it cannot tell us what the impact of gaming might be on mood in the moment, nor does it provide as in-depth detail about specific moods experienced during gaming as perhaps was hoped in the initial design of the study. It may therefore be useful to explore the impact of gaming on mood in a persistent low mood population without the lens of reflection. By focusing more on mood specifically, this may also unpack the aspects of gaming most important to influencing mood.

4.4.6 Summary of Results

Considering the 5 main themes found related to the overall research questions, there seems to be two key experiences described by gamers with low mood:

1. During 'typical' periods of low mood when energy is available, players favour games which are engaging and capable of holding their focus. Often these are story-focused or strategy games
2. During periods of low mood where energy is also low, players favour predictable, familiar games that they can play without much thought. These are capable of occupying the player but it is more of a passive experience than the engagement found in the patterns of play associated with the engaging games

These two patterns also partially answer why people with persistent low mood play the types of games they reported playing. In addition to many expected reasons games are generally appealing (graphics, fun mechanics, social play), participants also reported choosing games based on the emotional effect they had. Selecting a game seems potentially

important for either improving or worsening the low mood a participant was experiencing. This can be seen in **Figure 2.3** and **Figure 2.1** (repeated here), with the first illustrating the general pattern and the second applying the themes surrounding low energy and demand to this pattern:

Figure 2.3: An overview of the general pattern of play seen reported by participants with persistent low mood when mood is low

Figure 2.1: An overview of the themes and general pattern of play seen reported by participants with persistent low mood, applying the terms used by participants during the study itself

The final research question was 'What attitudes did people with low mood have towards their play?'. Participants' feelings and attitudes can be seen throughout the themes and the way they talked about gaming during the interview. The overall attitude was extremely positive, with many participants quick to defend gaming as a hobby and every participant citing at least one benefit of gaming when prompted. Many talked about the social and emotional benefits, and the huge impact games had on their wellbeing. The most prominent negative attitude was one of guilt, with almost every participant then clarifying that gaming specifically was not the problem but rather their own willpower or ability to manage their time. Other negative attitudes included concern about toxic gamers and a general dismissal of the importance of games, although these same participants would still talk about games very positively in terms of their impact.

Comparing the findings of the current study to Study 1, there are several overlaps with regards to mood and preferences of play. Both groups of participants mentioned the positive effect gaming had on their moods and social relationships. There was some overlap in the desire for engagement and distraction, with Study 2 providing more depth about the kinds of games which could offer this experience for a persistent low mood population specifically. However, there were some differences between the findings of each study. Study 2's themes suggested this pattern of play which became more passive and 'autopilot', which was not strongly suggested by the findings of Study 1. While some participants in Study 1 suggested gaming became less of a choice and more of a default option due to lockdown restrictions, they did not express the same 'emotional flattening'. Differences could be down to study design (as Study 2 allowed for deeper exploration of responses) but this may also be a more unique feature of persistent low mood players. Other work around gaming during difficult life experiences and other mental health conditions does not seem to typically report this trend of passive play, which leans towards the latter explanation. However, conclusions which can be drawn are limited here.

4.4.7 Conclusions and Contributions to the Thesis Questions

Returning to the overall thesis questions, Study 2 contributes greatly to beginning to understand the player experience of people with persistent low mood. The themes created help address all four of the overall research questions. In terms of 'How do games impact low mood?' Study 2 outlines some key ways games can help alleviate or improve low mood by offering certain desirable experiences, building on the work from Study 1 and adding in some unique findings related to a persistent low mood population specifically. These same findings also help address 'Why does someone with persistent low mood play games?' as participants reported seeking out different gaming experiences depending on what their current needs were.

Addressing 'What effect do games have onpeople with persistent low mood?' and 'How do people with persistent low mood feel about their gaming?' together, participants had

a very positive view of their gaming overall. As a hobby, gaming was extremely valued by all participants and there were many positive emotional and mental benefits gained from gaming. Though persistent low mood sometimes reduced these benefits and exacerbated the negative aspects of gaming, many participants still stressed that gaming was a positive experience overall and something which was deeply important to them.

Though Study 2 does address many aspects of the thesis questions, there are still some elements that remain less explored. When considering the impact of gaming on mood, Study 2 is limited by its reflective design which relies on memory. Though there are benefits to this design, exploring the direct impact of gaming 'in the moment' would allow for a deeper understanding of how gaming might affect different moods in a persistent low mood population. Similarly, motivations could be further explored by examining what prompts someone with persistent low mood to pick a particular game in a particular moment. It is possible that the motivations highlighted throughout the current study represent the way people with persistent low mood rationalise their play after the fact. Asking about motivations before play could produce potentially different motivations which might help answer why people with persistent low mood play games. Therefore, Study 3 was designed to address these remaining questions.

5. Moods and Motivations of a Persistent Low Mood Population

5.1 Introduction

The previous work discussed in Study 2 resulted in 5 themes surrounding general gameplay habits, attitudes and preferences among a persistent low mood population, primarily gathered from asking participants to reflect and report on previous gaming experiences. These themes broadly outlined what people with persistent low mood play, what motivates them to play and what attitudes they hold about their gameplay more broadly. These findings helped address many aspects of the overall thesis questions but they were also limited to the context of self-reporting past experiences.

What Study 2 could not address was how individual gaming sessions might impact a persistent low mood player in the moment. There was also a lack of information on specific moods which might be affected outside of the broad concept of persistent low mood. Some work has suggested that the type of negative mood experienced might impact how well-suited games are to improving this mood (Bowman & Tamborini, 2015) but there are relatively few studies which explore how different negative moods are affected by gaming, and even fewer which look at different moods in a persistent low mood population.

Similarly, Study 2 highlighted some key reasons why people with persistent low mood reported playing games. There seemed to be evidence that participants chose games which provided different kinds of experiences depending on their mood and energy levels. Low effort games were desirable when both mood and energy were low whereas more engaging experiences were desired when participants felt like they had enough energy to engage. As with mood, there is scope to explore motivations for play further by examining what makes someone with persistent low mood choose a particular game in a particular moment, or even what makes them decide to play a game at all. Previous work suggests that motivations may impact outcomes on mood (eg. Kirby, Jones & Copello, 2014; Yang & Liu, 2017;) so this might also be worth exploring further.

To address these questions, a diary study design was chosen to capture how people with persistent low mood play games in their daily lives, and how games affect their mood more immediately. Interviews were also conducted before and after the period of diary keeping in order to flesh out the data collected from the diaries.

The research questions were as follows:

1. What prompts someone with persistent low mood to play a game?
2. How does someone with persistent low mood feel before and after playing a game?
3. Does someone's reason for play influence the effect a game has on their mood?

5.2 Methodology

As mentioned, the proposed method for investigating these research questions was a diary study. Several other potential methods were considered, such as observations or some kind of structured experimental design involving scheduled play sessions and measures of mood. Ultimately it was decided that both observations and getting people to play in a scheduled fashion would not capture the natural pattern of play which it was the goal of the thesis to explore. There might also be additional problems with asking people with persistent low mood to regularly come into a particular setting to play. The risk of that method would be that only people with the sufficient energy to engage would take part, restricting the sample more than other methods potentially would. Whilst diary studies are also potentially demanding, participants would be able to fill in the diaries from the comfort of their own homes in whatever method they found easiest, lessening the demand somewhat.

Diary studies are a common way of examining technology's impact on wellbeing (Kosa & Uysal, 2022, Orben & Przybylski, 2019) although these largely consist of questionnaire distributions rather than open text box responses. Other gaming studies have employed methods such as systematic self-observation (Whitby et al, 2023) or utilised gaming diaries as part of a case study approach (Iacovides et al, 2015; Fox, Gilbert & Tang, 2018) to successfully record naturalistic gameplay habits and explore player experience. Though diaries still involve a reflective component, the data they produce is generally considered to be more accurate as it is recorded as close to the behaviour as possible (Mackrill, 2008). A similar approach to previous work is adopted here, whereby participants are asked to fill in the diary whenever they play a game and make a note of their mood and reason for play before and after. The current approach is less in-depth than systematic self-observation or examining case studies but felt suitable for capturing the specific focus on mood and motivations.

Diary studies are time-consuming and can have high attrition rates, so interviews were also conducted to a) ensure the participant fully understood the study and how to complete the diary and b) to ask follow-up questions about diary entries deemed significant or unclear. Interviews alongside diaries are an established method to help evaluate the extent to which participants feel the diaries represent their own behaviour and to further explore the contexts of the behaviours recorded (Elliot, 1997), both of which seemed like useful additions to data collection here. As the research questions focused on producing lists of feelings and prompts, qualitative content analysis was chosen. Further details on analysis procedure and justification will be expanded upon below.

Ethical approval was granted by the PSEC at the University of York. Before recruitment, two pilot studies were conducted to ensure the interviews and diaries were getting the desired responses. Only one change was made to the diaries and interviews after the pilot studies, which was to make the request about the time played clearer. Pilot data was excluded from the final sample as participants did not fully meet the criteria.

5.2.1 Participants and Recruitment

Participants were recruited primarily through online social media, with an advert posted on Twitter. Recruitment criteria included:

- Being 18+
- Self-identifying as currently having persistent low mood
- Having an active interest in playing video games

As with Study 2, self-identification with the term 'persistent low mood' was sufficient to take part in the study. As before, this was done so as to not require a formal diagnosis which might exclude otherwise valid participants and put pressure on participants to 'prove' their low mood. Several participants asked whether their persistent low mood was 'bad enough' to take part in the study. They were told that if they felt comfortable identifying with the term, then that was fine. Similarly, several people queried if they 'played enough' games. They were told that they could take part so long as they typically played a few times a week.

In total, 16 participants signed up to take part in the study. One participant was excluded after the first interview due to poor audio quality making it difficult to make sure they had fully understood the instructions. Another participant was excluded after the final interview as they tried to sign up to the study again through a different email, suggesting the validity of their responses could not be ensured. This left a total of 14 participants in the final sample.

For this study, participants were asked during the first interview for their first name, age, gender and occupation. Unlike in Study 2, participant gender was recorded in this study as additional literature had been read which indicated gender might be a factor in how success in games is perceived by the player (Tomlinson, 2020). Due to achievement and social success being themes from Study 2, gender was therefore recorded in case these factors were mentioned again. Of the demographics collected, the mean age was 29.79 and the age range was 24-43. Gender distributions can be seen in **Figure 3.1**. Note that gender is presented in the terms chosen by the participant and not the researcher.
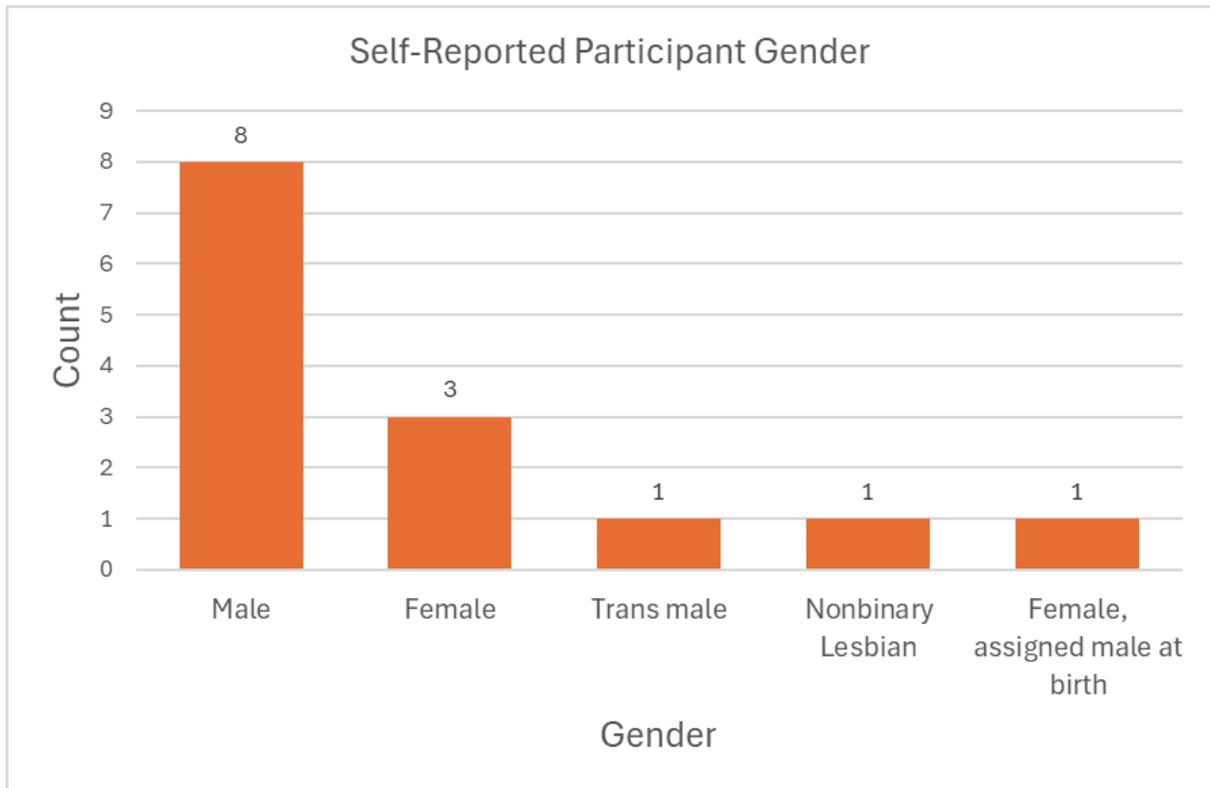
Figure 3.1: A bar chart depicting the self-reported gender distribution of participants

Of the occupations given, the most common was PhD student (N=5) followed by teacher/lecturer (N=3). A full list of occupations can be seen in **Table A.3** (see Appendices).

No other participant information was gathered through the diaries or interviews, but pre-interview communication revealed at least three of the sample had comorbid anxiety with their low mood and two had chronic pain conditions.

5.2.2 Design and Procedure

After an expression of interest, participants were sent a full information and consent sheet to sign. Once consent had been given, the pre-interview was arranged. Pre-interviews lasted about 10 minutes, with 5 minutes of explanation and 5 minutes of questions. Pre and post interviews were held over Zoom, with the meeting recorded directly through the university Zoom account and then downloaded onto the university Google Drive afterwards. Participants were sent both a calendar invite and an email with the link.

At the pre-interview, participants were shown their diary through Zoom screen share and talked through the process of filling it out. They were then asked the following questions:

1. What is your first name, age, gender and job if you have one?
2. When/how often do you typically play games?

3. What kinds of games do you usually play? (few examples, multiplayer vs solo etc)
4. What do you think the relationship is between your mood and gaming?

The start date of the diary was then agreed upon, with a reminder being sent the day before participants were due to fill it out. Further email reminders were sent halfway through the study period and on the last day. Participants were asked to keep the diary for 9 days in total (inclusive), with the start date selected to include two weekends. 9 days was chosen as a suitable length of time as any longer might increase the burden on participants, but any shorter would not allow for the inclusion of two weekends. The reason for including two weekends was so that participants with full-time jobs and other obligations would have a higher chance of having at least one free day on which to play games. In terms of what the literature says about diary study lengths, the majority of diary studies run longer than two weeks (Janssens et al, 2018) but these are also often either using quantitative measures and so need larger volumes of data, or are measuring time-sensitive events that are less common than gaming. A case study found that shorter time frames for diary studies are appropriate so long as the length is 'both possible and meaningful for a phenomenon that is measured in days' (Henderson, 2021). For the current study, the diary was event-based and intended to capture when participants played digital games. Both Studies 1 and 2 captured some measure of how often participants played and participant responses to these two studies suggested that 9 days would be sufficient to capture at least a few play sessions from each participant..

Participants were instructed to fill out the diary before and after every time they played a digital game over the 9 day period (inclusive). Digital games were defined as anything the participant considered to be a game, with Wordle discussed as an example (if they thought something counted as a game, they were told to report it). Diaries were distributed digitally through Google Docs, with each participant having a unique diary linked to their participant code that only they and the researcher could access. Participant numbers were randomly generated numbers from 1-100. After the final interview, edit rights of the participant were removed from the diary, although they could still view their diary entries.

Examples of the diary structure can be seen below in **Figures 3.2, 3.3 and 3.5**.

Gaming Diary: Participant

- Please fill in this diary with as much detail as you feel able to
- If you are unable to complete the diary before or after a gaming session, please try to complete it as close to the session as possible
- Ideally make a note if the diary is not completed at the time of the session
- With the exception of late entries, please try not to edit an entry once completed
- Do not worry about any formatting errors, these will be tidied up once the 9 day period is over
- If you run out of entry space, please email laura.helsby@york.ac.uk and more entries will be added
- If you have any questions, also contact laura.helsby@york.ac.uk

Start Date:	
End Date:	

Figure 3.2: The first page of the participant diary

Game #1-Before

Date/ Estimated Time of Day:

What game are you about to play? [eg. Stardew Valley on PC]

How are you currently feeling?

Why did you decide to play this game now?

Figure 3.3: A blank 'Before Play' page from the participant diary showing the questions asked to participants

Game #1-After

How long did you play for?

How are you currently feeling?

What was the most significant thing that happened during play?

Feel free to add anything else of note here:

Figure 3.4: A blank 'After Play' page from the participant diary showing the questions asked to participants

Participants were provided with 20 blank pages, with instructions to either create more (if they felt comfortable doing so) or to email the researcher if they ran out. No participants needed extra pages in the end.

For the diary structure, open-ended free text questions were used to allow for a qualitative content analysis to be carried out to categorise participants' feelings and motivations. Quantitative measures of mood were considered but due to the varied nature of moods described in Study 1, a more explorative approach was chosen Open text would allow participants to describe their mood in whatever words felt suitable, without being restricted to a checklist of pre-determined possibilities.

Similarly, while there is a body of work on gaming motivations, the current study focused on what reasons participants gave for playing games without limiting them to a pre-set list of motivations. An open text box would also allow participants to offer any reason they felt explained why they were playing, not just higher level motivations (eg. achievement) or aspects of the game they liked (eg. it's a genre I like), which seemed suitable as the goal was to avoid excluding either of these.

During the explanation of the diaries, participants were instructed to fill in the diary as close to play as possible. If they were short on time, they were told to prioritise the 'how are you currently feeling?' sections and to fill in the rest later if necessary. In the post-interviews, the vast majority of participants reported filling in the diary entries at the requested times (N=12). For the 'most significant thing' part of the after sections, they were told to put something which might prompt their memory later in the interview to remember the session.

The post interview was arranged as close as possible to the end of the diary study. Most took place within a few days, with only one participant having their interview delayed by a week due to outside circumstances. Before the interview, participants were asked to read through their own diaries and to select any entries they felt were significant to discuss at the interview. The researcher did the same.

The post-interview questions were as follows:

1. How did you find the experience?
2. When did you fill in the diary entries?
3. To what extent do you feel these last two weeks were representative of your usual gaming habits and general mood?
   a. Did anything happen in the last two weeks which had a major impact on your gameplay habits or general mood?
4. What entries have you selected as significant?
   a. Do any games stand out to you from this week? If so, why?
5. Did this study change the way you think about your gaming or your mood? If so, how?

For the selection of significant entries, participants were asked to share theirs first. These were discussed one by one until the participant had run out. A few participants said they had no entries they considered significant (N=3). After this, the researcher highlighted any entries she thought were significant that hadn't yet been discussed, and the process was repeated.

Participants received £20 in total in Amazon vouchers for their participation. They received £10 at the end of the first interview and £10 after the completion of the second interview/diary entries.

5.2.3 Transcription and Analysis

Both sets of interviews were initially transcribed using an online research-based transcription service compliant with the GDPR. A rough transcription file was then copied into a Google Document and manually edited to ensure accuracy and anonymisation. Transcripts were stored under the same participant numbers as assigned through the diaries.

Diary entries were copied into Google Sheets, with one sheet per participant for ease of reading. Entries were not edited in any way.

In order to address the research questions, several categories of information needed to be created. For this reason, a qualitative content analysis method was chosen (Mayring, 2004) as this technique focuses on the formation of bottom-up categories using iterative methods. This same method was used in Study 1 to create lists of moods experienced during gaming and so seemed appropriate to tackle similar research questions here.

For the analysis, the aim was to tackle each research question separately. In order to address 'How does someone with persistent low mood feel before and after playing a game?', categories of feelings needed to be created. These feelings would be further divided into Moods experienced before play and Moods experienced after play. The steps of coding will now be outlined for this first research question.

Firstly, moods were analysed from only the diary entries (not the interviews) for both before and after play. Analysis was conducted by reading the responses to the 'How are you currently feeling?' sections from before and after play, as well as the 'What was the most significant thing that happened in the session?' and 'notes' sections of the after entries for each participant (see **Figure 3.5**). The latter two were read to provide additional context for the 'after' moods.

Moods

- How are you currently feeling? (before)
- How are you currently feeling? (after)
- What was the most significant thing that happened in the session?
- Feel free to add anything else of note here:
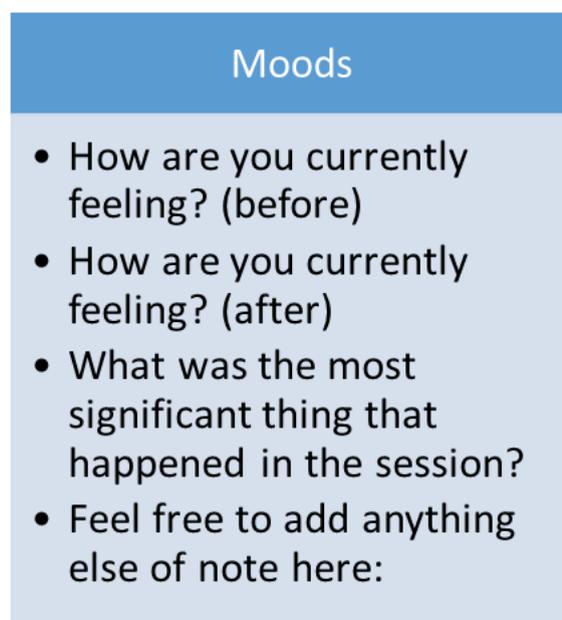
Figure 3.5: A diagram showing where the 'Mood' codes were derived from

After reading literature on moods, emotions and related concepts, the coding criteria for 'a feeling' was selected. Similar to Study 1, for this work a 'feeling' describes 'an affective state which can characterize a mood or a temperament' (adapted from Fox et al, 2018). This definition was chosen as the distinction between moods and emotions in the literature is complex, and the information provided by participants was not enough to

separate out these specific differences (eg. duration, intensity and whether it promotes immediate action or not). Additionally, there is evidence that the general population views emotions and moods differently to academic work (Beedie, Terry & Lane, 2005) and also that there are discrepancies between how people define emotions and moods in terms of stability and controllability within common parlance. Emotions are often viewed as being experienced in response to stimuli such as gaming (Beedie, Terry & Lane, 2005; Fox et al, 2018) but moods can be seen as more easily controllable and easier to change (Beedie, Terry & Lane, 2005). As the key focus of the present research questions is on how these feelings change in response to gaming, not how those feelings are conceptualised to begin with (beyond participant and researcher conceptualisation), 'feeling' and 'mood' will be used interchangeably as terms throughout this chapter. 'Mood' has been chosen rather than 'emotion' due to the focus on the term 'mood' in research presented in the literature review (to avoid using three terms interchangeably in this chapter), as well as to offer cohesiveness with the term 'persistent low mood'.

On the first pass, anything written by the participant in response to 'How are you currently feeling?' was typed up into Excel with a count. Each code could only be applied to each entry once: for example, P72 wrote 'Bit stressed! It's been a tough week. I've found myself increasingly stressed recently.' which only counted for the code 'stressed' once. Counts for before moods and after moods were kept separate, although the same mood could appear in both sections. The same phrase could be tagged with multiple moods at this stage. For example, if someone reported their anxiety improved after play then that could be tagged with both 'better' and 'less anxious' for the first pass.

Once the first pass was complete, the list of codes was examined and rearranged both alphabetically and by count. Some codes were removed at this point, examples of which can be seen in **Table 3.1**. In total, 20 codes were removed or merged at this stage and one additional code was added ('Anxious' was split into 'Anxious' and 'Anxious about work').

Original Code	New Code
Angry	Annoyed
Fatigued	[Removed]
Can't focus	Distracted

Table 3.1: A table showing the removed/merged codes from the first pass of coding

The remaining codes were then copied into a fresh spreadsheet and the process of going through the diary entries was repeated. After the second pass, codes and counts from the first and second passes were compared. Again, some codes were merged or renamed to better capture what was going on. A third pass was completed in a similar way, and a fourth pass was done only for codes which differed between the 2nd and 3rd passes by +/- 2 in count.

To address the research question 'What prompts someone with persistent low mood to play a game?', a similar process was followed to create codes based on motivations. Codes primarily came from the answer to 'Why did you decide to play this game now?', although the responses to 'How are you feeling' before play were also examined in case some additional prompts were written there (see **Figure 3.6**). For example, P17 put this response in the 'How are you feeling?' section:

'Still feeling pretty low, but I have work tomorrow so going to do a couple of rounds of Unite to try and clear my mind a bit and then go to bed'

And then wrote *'Same as above really'* in the 'Why did you decide to play this game now?' field. 'Boredom' was counted as a motivation only if it appeared in response to the 'Why did you decide to play this game now?' question and not if it was listed exclusively as a feeling.
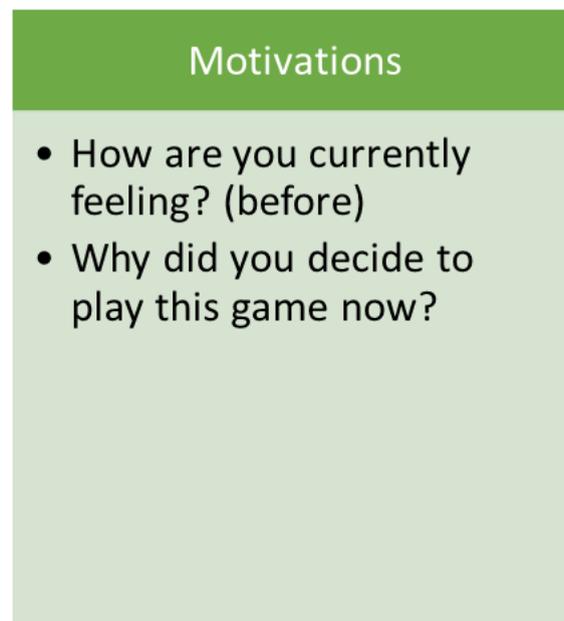
Figure 3.6: A diagram showing where the 'Motivation' codes were derived from

The first pass was done similarly to the coding process of the moods, with motivations being typed up with a count. After three passes of coding, motivations were then assigned into categories based on commonalities (Mayring, 2004). A total of 9 categories were created which are defined and discussed in the results section. These groups were then taken and re-assigned to the original diary entries to check they still captured the essence of what was being said.

For the final research question 'Does someone's reason for play influence the effect a game has on their mood?', additional analyses were carried out using the codes created for both moods and motivations. This analysis will be reported in the results section to make the process easier to follow.

5.3 Results

From 14 participants, there were a total of 161 diary entries, with each entry representing a single gaming session (both before and after). Participants had an average of 11.5 entries, with the range being 3-22.

5.3.1 Preliminary Questions

As part of the initial pre-interview, three questions were asked to gather additional information about participants. These questions concerned how often people played, what kinds of games they typically played and an additional question about perception of mood and gaming habits. Out of the 14 participants, 12 reported that they typically played games every day, often multiple times a day. The two other participants reported playing between 5-30 hours a week depending on how busy they were, and going through phases of playing every day and not playing for a few days.

In terms of what participants played, there was a fairly large range of types of games and specific titles. The most common types of games mentioned in the interviews were RPGs (both action, JRPG and general RPGs being mentioned), MMOs and mobile games (often puzzle or casual). Specific game titles from the interviews were not analysed further as they did not contribute to the research questions. Of the 13 participants that reported whether they played single or multiplayer games, the majority played mostly single player games (8/13). Game data from the diary entries will be covered in more detail below.

The final pre-interview question asked was 'What if any, do you think the relationship is between your mood and your gaming?'. This question was asked to try and gauge how much participants might already reflect on their mood and gaming habits as this might affect how they filled in the diary (this will be revisited in the discussion). Common answers included playing games to manage focus and to distract from their low mood/related thoughts.

5.3.2 Diary Experience

At the post-study interview, several questions were asked to gauge the participant's experience of the study and to gather additional information about how the diaries were filled in to better understand the context of the results.

The first question was 'How did you find the experience?'. Responses to this question were universally positive, with participants stating they found the experience of keeping a diary 'interesting'(4/14) and 'good' (4/14). The main complaint about the experience was that filling in the diary beforehand made participants less likely to play games, especially if

they were feeling low mood and/or low energy. These participants specified that it was 'a minor inconvenience' rather than a huge problem but it is worth bearing in mind that this was the case, despite attempts to keep the cognitive demand of the diary low.

The other key takeaway participants had from the experience of keeping the diary was that they felt it made them more reflective about their gameplay. Even participants who reported thinking about the relationship between their mood and gaming beforehand said they became more reflective and more aware of the impact gaming was having on their mood. Some participants mentioned realising that they used specific games for specific reasons (eg. to focus or relax). In one extreme example, P90 reported that they had stopped playing gacha games entirely because they realised they weren't getting anything out of playing them except to fill time. These takeaways will be considered further during the discussion.

The next question asked was 'When did you fill in the diary entries?'. 6/14 participants reported filling in the diaries always on time, with an additional 4/14 reporting 'mostly on time' with a few exceptions. The other 4/14 participants reported a mix, with two participant sometimes doing the 'before' entries after gaming (P25 and P43), one participant always doing the 'before' entries after (P63) and one who gamed late at night sometimes doing the after entries the next morning (P96). It is unlikely the entries for these four participants are measuring what was intended due to these gaps, with the 'before' entries being most commonly affected. What is worth noting though is that participants will seemingly give honest answers when asked this question, and so it is potentially worth including in diary studies to address the concern about whether diaries are kept accurately or not.

The final question asked about the experience was whether or not it was representative of the typical '9 days' in the participants' lives, both in terms of mood and gaming. 13/14 participants reported it being typical of their usual mood, with the other participant reporting their mood was 'more intense' during those 9 days specifically (P90). 10/14 reported it being typical of their gaming habits, with two not specifying why it wasn't typical, one stating they usually played more (P90) and one stating they usually played less (P89). P90 reported playing less during the 9 days as he was moving house, whilst P89 reported playing more since he felt he could due to taking part in the study.

Alongside this, participants were asked if anything major happened in the 9 days that affected either their mood or their gaming. Only 5/14 reported that nothing major happened. 2/14 said that something major but unspecified happened, whilst other factors reported included work stress, moving house and chronic pain flare ups.

5.3.3 What games did people play during the diary keeping?

From the 161 diary entries, 165 types of game were recorded. This discrepancy is due to a few entries referring to two games in one entry. Game types were determined by

Googling the game title (followed by 'game' if the results did not bring up the game automatically) and selecting the genre labels suggested by Wikipedia/Google on the right (see **Figure 3.7**).
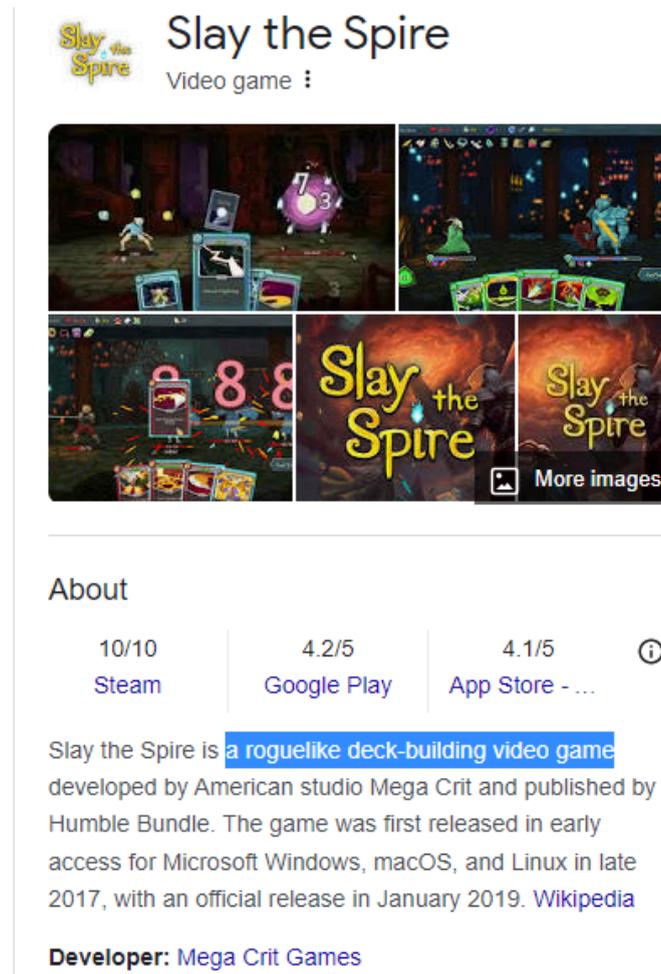
Figure 3.7: An example of how game type was assigned. The image shows a Google result for the game 'Slay the Spire' with a generated game category from Wikipedia

Every game in the diary was labelled this way. After this step, a total of 19 types of game were generated by combining sub-types (eg. 'Action RPG' and 'JRPG' both became 'RPG'). These types can be seen in **Figure 3.8**.
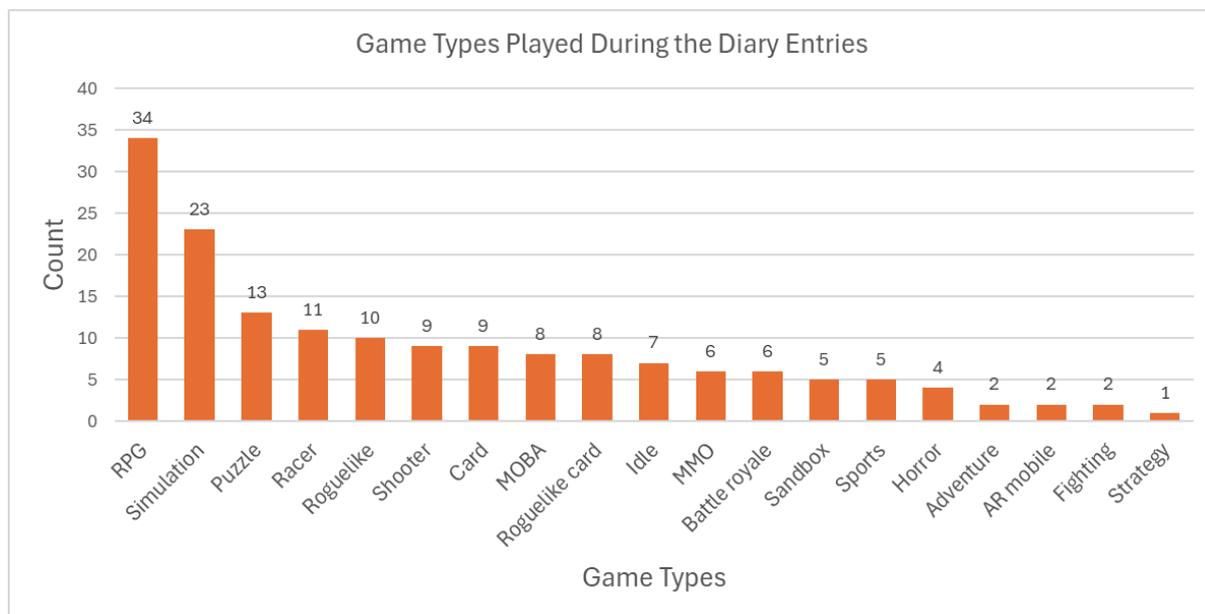
Figure 3.8: A bar chart of the types of games listed in the diary entries from most common to least common

The most common individual game played during the study was Slay the Spire (N=3 participants). Most participants tended to play the same game or few games for the majority of the 9 days, with the exception of P39 and P72, who changed both individual title and type of game frequently.

5.3.4 What prompts someone with persistent low mood to play a game?

From the diary data only (ignoring interviews), a total of 54 different motivation codes were identified after three passes of coding. A complete list of motivation codes can be seen in **Table A.4** (see Appendices). The top five motivations were:

1. Played previously and wanted to play more (26)
2. Playing for the social aspect (21)
3. Playing whilst doing another activity (15)
4. To relax (12)
5. Don't need to make an effort to play (12)
6. Easy or simple to play (11)

As mentioned in the 'analysis' section, these 54 motivations were then taken and organised into 9 categories, which can be seen in **Table 3.2**. Motivations had similar counts overall, with the exception of low effort/convenience (32) and avoiding work/habit (3 and 5 respectively).

Group	Definition	Example Quote	Count
Low effort/convenience	Playing because a game is easy to start playing, low effort or the game itself is not demanding	'I was actually going to boot up Stray but then the controller was too far and I'm already in bed so Switch it is.' P17	32
Achievement	Playing to achieve things specifically or to make progress in a game. Also includes challenge	'Chasing the dopamine hit of defeating that last boss…' P96	26
Enjoyment	Playing because they enjoyed it previously, it's a game type they like or for entertainment purposes	'I've been really enjoying it last few times I played and I'm a bit bored at the moment' P39	26
Social	Playing with someone else or playing for content purposes (eg. streaming)	'To spend some time with my wife' P25	25
Mood management	Playing to relax, feel better or otherwise cope with emotions (such as distraction from anxious thoughts)	'To try and help myself work. Siege used adrenaline and has lots of natural pauses for work.' P21	24
Novelty/curiosity	Game is new, has new content or is otherwise a new experience to the player	'Novelty of trying out something new to see if its worth playing with friends enough to motivate me to play it' P39	24
To pass time	Break or waiting for something	'Waiting for friend who is faffing around and remembered I have daily challenges to play on both games	13

		– but also that it would be a good time to play as I didn't yesterday' P43	
Habit	Game is whatever they are playing currently and they want to play more of it	'It's what I'm playing on switch right now' P21	5
Avoiding work	Procrastination	'Put off work.' P25	3

Table 3.2: A table showing the 9 categories of motivations created

Across participants, reasons for play tended to be quite mixed (see **Table 3.3** for counts). P17 played almost entirely out of low effort (N=6/7) and P21 played more for mood management than other reasons (N=8/16) but most participants reported a variety (Range=2-7, mean=4.79).

Participant Number	Motivation Category								
	Achievement	*Avoiding Work*	*Enjoyment*	*Habit*	*Low effort*	*Mood Management*	*Novelty/ curiosity*	*Social*	*To pass time*
17				1	6				
21			3	3		8	2		
25	5	3	1	1	1			2	3
39			4		7	2	4	4	1
43			3			3	1	2	1
45	4		1		3	1	3	1	
53	4		1		6	1		1	5
63						3	2		
72			4		5	1	4	7	
77			2		2	3	2		2
85	3		1			1	1	4	1

89	4		3		1	1	2	3	
90	2				1				
96	4		3		1		1	2	

Table 3.3: A table showing the 9 categories of motivations distributed across participants in Study 3

Similarly, reasons for play were taken and compared to what type of game people chose to play based on their reason for playing. For this, game sessions with multiple games played at the same time were not considered. The game types used were the 19 listed previously, minus any game types which had less than 5 entries on them due to lack of data. There were no particular patterns for reasons for play and type of game (see **Table 3.4** for counts), though people did report playing RPGs primarily for achievement (N=11/37) and enjoyment (N=11/37).

Game Type	Motivation Category								
	Achievement	*Avoiding Work*	*Enjoyment*	*Habit*	*Low effort*	*Mood Management*	*Novelty/ curiosity*	*Social*	*To pass time*
Battle Royale					1		1	4	
Card	3	2	1						4
Idle					5	1	1		
MOBA	1			1	5	5			
Puzzle			3			3	3	2	
Racer			2		4	1	2	1	
Roguelike	3		4			1	4		1
Roguelike card	3		1	1	3				1
RPG	11		11	2	2	4	3	4	
Sandbox						1		4	
Shooter						5	1	3	
Simulation	2		2		6	5	2	2	7
Sports						1	2	2	

Table 3.4: A table showing the 9 categories of motivations distributed across game type in Study 3

5.3.5 How does someone with persistent low mood feel before and after playing a game?

To answer this research question, this section considers how participants felt before gameplay, how they felt after gameplay and whether their feelings changed during the process.

How did participants feel before playing a game?

In total, participants reported 328 instances of 57 different feelings before playing a game. These feelings were then categorised as positive, negative or neutral. Participants were most likely to report feeling negative before play, with 212/328 instances of negative feelings before play. There were 39/328 instances of neutral feelings and 77/328 instances of positive feelings. The top three most common negative, neutral and positive feelings can be seen in **Table 3.5**.

	Most Common Feelings (before)	Example Entry
Negative Feelings	Low mood, N=32	Pretty low, just wanna be in bed and not move P17
	Tired, N=31	A bit tired P53
	Anxiety, N=19	High anxiety as well P53
Neutral Feelings	Okay, N=14	Fine P25
	Neutral, N=9	Neutral mood and energy levels P39
	Sleepy, N=9	Sleepy P21
Positive Feelings	Good, N=27	Excited, happy, arrogant. I've had a really good day, it's

		been really positive and I'm looking forward to playing tonight. P85
	Excited (for game), N=8	Good! Very excited for "Game night" catching up with my pal and playing games P89
	Relaxed, N=8	Really relaxed P43

Table 3.5: The 3 most common feelings reported before play, organised by positive, negative and neutral feelings

How did participants feel after playing a game?

In total, participants reported 377 instances of 67 different feelings after playing a game. As with the 'before' entries, feelings were categorised as either positive, negative or neutral. There was an additional category of 'a change' as some feelings were relative to the 'before' feelings but weren't always clearly positive or negative in their own right.

In contrast to the 'before' feelings, participants were most likely to report feeling positive (139/377) or neutral (128/377) after gameplay, followed by negative (63/377) and changed feelings (47/377). The top three most common feelings of each category can be seen in **Table 3.6**.

	Most Common Feelings (after)	Example Entry
Negative Feelings	Tired, N=22	incredibly tired. P25
	Dissatisfied/frustrated by the game, N=17	A little dissatisfied, as the game isn't very engaging/rewarding P39
	Anxious about work, N=12	Slowly feeling a bit anxious

		about working tomorrow. P89
Neutral Feelings	No change, N=36	Not a huge change after P53
	Okay, N=10	Okay P21
	Sleepy, N=7	Sleepppy P21
Positive Feelings	Good, N=31	Good! Energised.I felt pretty good at the end of this. P72
	Accomplished, N=20	Absolutely flying. Almost too hyped to go to sleep! P89
	Satisfied with game/experience, N=18	Satisfied. Tasks complete and distracted from outside of the game problems P90
Changed Feelings	Better, N=23	A little bit brighter because I won a few games and lost only one P63
	Calmer, N=11	Calmer with a sense of purpose but had to stop to do productive rl stuff P90
	Less anxious, N=4	less anxious P53

Table 3.6: The 3 most common feelings reported after play, organised by positive, negative and neutral feelings

How did feelings change from gameplay?

To examine the change in feelings from gameplay, the diary entries from before gameplay were analysed again and their overall sentiment was categorised as Positive, Negative, Neutral or Mixed. In the analysis for the previous sections, one entry could contain multiple different feelings of different valences (eg. 'Quite good overall however a little anxious just in the sense that I'm feeling rushed', P53). However, for this comparison only the overall sentiment of the entry was taken with one label per entry. The same process was then followed for the 'after' diary entries with the addition of two more categories: Better But Still Bad and Worse But Still Good. The latter category had no entries and so will not be mentioned again. Examples of each category can be seen below in **Figure 3.9**.

Figure 3.9: Example quotes to illustrate the 'sentiment' categorisation groups for feelings

Once every entry was categorised, the changes between before and after sessions were then examined in detail and the number of each combination of changes was calculated. Changes could be positive, negative or neutral, with the most common individual changes being Negative to Positive (30/161 entries) and positive to positive (30/161 entries).

From the 161 entries, 3 entries were categorised as a change from Neutral -> Mixed or Mixed -> Neutral, which were removed from further counts as it was difficult to label these as either positive, negative or no changes. Of all 158 remaining entries, the most common type of change was positive (75), closely followed by no change (65, see **Figure 3.10**).
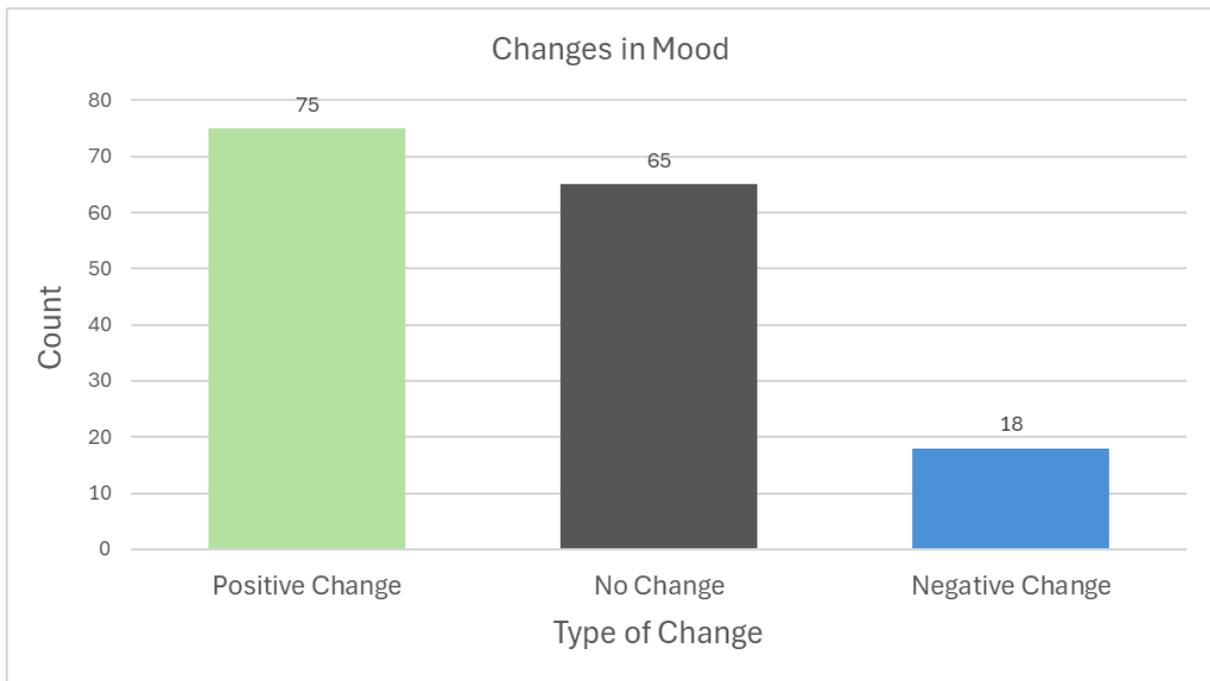
Figure 3.10: A bar chart showing the number of each type of change in mood, categorised into a positive change, negative change or no change

On the individual level, 5/14 participants had no negative changes at all from gaming and every participant experienced at least one positive change. P39 had the most positive changes with 15 entries (although she also had the most entries overall) whilst P43 had the fewest with 1. In terms of percentage, P45 had the highest percentage of positive changes whilst P43 again had the lowest percentage of positive changes. For negative changes, P43 had both the highest count and the highest percentage.

Finally, focusing on the mood participants started in (positive, negative, neutral or mixed) and where they ended up, if participants started in a positive mood, they were most likely to remain positive (30/41 entries). If they started in a negative mood, they were most likely to end in a positive mood (30/77 entries). If they started in a neutral mood, participants were most likely to remain neutral (11/28) closely followed by their mood becoming more positive (10/28). Finally, if participants started in a mixed mood then it was equally likely for their mood to become positive or negative (4/15) though overall there was little difference in numbers for these entries as there were only 15 overall.

5. 3.6 Does someone's reason for play influence the effect a game has on their mood?

To address the third research question, additional comparisons were conducted to examine whether there were any patterns between the given reason for play and the change in feeling which occurred (or did not occur) as a result. The 9 categories of reasons for play were taken and counts of each type of mood change were calculated, which can be seen in

Table 3.7. The reason for play with the most amount of positive mood changes was Low effort/convenience, whilst playing for social or enjoyment reasons had the most amount of negative mood changes.

Motivation	Positive	No Change	Negative
Achievement	13	10	3
Avoiding Work	0	1	2
Enjoyment	11	7	6
Habit	4	0	0
Low effort	20	12	0
Mood Management	15	9	1
Novelty/curiosity	12	9	3
Social	7	11	6
To pass time	4	8	1

Table 3.7: The number of each play session which resulted in a positive change, negative change or no mood change, organised by the 9 categories of reasons for play

5.4 Discussion

Overall, this study aimed to explore the player experience of a persistent low mood population with a specific focus on if and how moods changed during gameplay, and what reasons people gave for playing games they chose. To address these questions, participants kept a gaming diary for 9 days and qualitative content analyses were carried out on both moods and reasons for play from the diary entries. This resulted in 9 categories of reasons for play and a range of feelings from both before and after play, with a general improvement or no effect of play on mood. These findings will be discussed in further detail.

5.4.1 What prompts someone with persistent low mood to play a game?

In total, persistent low mood participants reported 9 different categories of motivations for play: achievement, avoiding work, enjoyment, habit, low effort, mood management, novelty/curiosity, social and to pass time. The most common reason for play reported was participants playing games which are low effort or are convenient, including experiences where movement was not required to initiate play or games had been played before and therefore were 'easier' than new experiences. This preference towards low effort games echoes themes from Study 2 where easy, low effort experiences were desirable. People with depression struggle with a lack of motivation and active engagement (Watson et al,

2020) which could suggest why more 'passive' forms of play are desirable. However, while there is no general difference in willingness for effort for pleasure activities for people with depression compared to controls, there is evidence people with depression are less likely to increase effort as rewards increase (Kieslich et al, 2022). Therefore it is possible that low effort is appealing as the potential extra effort from a more involved gaming experience is either not seen as 'worth it' by participants or because of a disruption to the reward bias.

An alternative explanation for the 'low effort' preference is perhaps that participants only have low effort or easy experiences accessible to them, or at least feel like they are the only option due to decreased energy or mobility. There is evidence that perceived energy can affect self-management techniques for depression, including the types of activities engaged with (Kornfield et al, 2020). This idea is supported by some of the surrounding interview data with participants in the current study, where they talked about 'mental willpower' being an important factor when engaging with a game. Two participants reported chronic pain conditions alongside their persistent low mood symptoms and this was visible in some diary entries, with an increase in pain being linked to playing in a more accessible format which didn't require movement, such as a Switch console or a mobile phone. Though these participants do not account for the majority of the codes under the low effort category, it still suggests a potential limitation in the kind of activity they could engage with. Games have been highlighted as a relatively low energy activity in populations such as adolescents with disabilities (Rowland et al, 2016) and other work has found that gamers with disabilities will adapt their play to make games accessible to them (Porter & Kientz, 2013) so there is precedent in the literature for gaming being a low effort and accessible experience, even if the individual needs of the populations may differ.

Other common reasons for play included enjoyment, achievement, social purposes, a desire for novelty or mood management. Playing for enjoyment is to be expected and does not prompt further exploration. Playing for achievement ties into themes from both Study 1 and Study 2, and will be considered further below in the context of the potential influence on mood. Social gaming is often cited as being beneficial for low mood and wellbeing (eg. Halbrook et al, 2019) and so it is perhaps not surprising that participants would have a desire to play socially. Again, interactions with mood and social play will be discussed in a later section.

Novelty-seeking is not particularly related to depression, although it might be related to suicidal tendencies (Csorba et al, 2010), anxiety (Matsudaira & Kitamura, 2006) and internet gaming disorder (Şalvarlı & Griffiths, 2021). The desire for familiar gaming experiences was part of a theme from Study 2, although references to 'novelty' in the current study often reflected playing a new game in a familiar genre. Taken together, these findings could suggest that familiar mechanics or game features might be enough to provide the familiarity desired by players with persistent low mood, whilst the novelty of a new game provides the desired mental stimulation or boost. There are elements to support this throughout Study 2 and Study 3, with some participants explicitly stating they sought out games with features they knew they loved but that offered something new in some way. It is unclear whether this is characteristic of persistent low mood populations specifically or

whether this is part of the general gaming experience, as research into novelty and gaming remains relatively unexplored (Kosa & Uysal, 2024).

In terms of mood management, there are a range of studies that suggest gaming is often used for this purpose (eg. Bowman & Tamborini, 2015). However, in the current study playing for mood management was not always successful, with 15/25 sessions resulting in a positive mood change compared to 10 which did not. Out of those 10 'unsuccessful' sessions, only one resulted in a negative mood change with the others not affecting mood. Therefore, it is possible that the 'low risk' nature of gaming as a hobby makes it particularly appealing during low mood as a way of potentially managing emotions. Another possible explanation is that several participants reported avoiding play when they felt it would only make them feel worse if the experience went badly. These findings might relate to the lack of scaling of effort for greater rewards seen in depression discussed earlier (Kieslich et al, 2022) as the 'rewards' of gaming (in this case, better mood) and the relatively low effort of gaming as a hobby (as demonstrated by 'low effort' being the most common motivation for play) could interact with how participants use gaming for mood motivation.

There was a relatively low number of entries that mentioned playing to avoid work or playing out of habit which is perhaps surprising given avoidance behaviour is often associated with depression (Trew, 2011). Given the focus from participants on the 'intrusive' or potentially 'addictive' nature of gaming in both this study and Study 2, the lack of playing out of avoidance of responsibilities could suggest that gamers with persistent low mood worry about their gaming in a way disproportionate to the actual impact it has. This idea is potentially supported by several entries focusing on 'justifying' their play, as if expecting judgement. Similar patterns of embarrassment have been found in a general adult population surrounding attitudes to gameplay (Deterding, 2018) and shame is often associated with depressive symptoms such as low mood (Kim, Thibodeau & Jorgensen, 2011). Additionally, work focused around gaming during difficult life experiences found that participants reported gaming as 'unproductive' even when it had a positive impact on their lives (Iacovides & Mekler, 2019) which could support the idea of a bias towards negativity when it comes to valuing games.

However, an alternative explanation is that the participants in the study were 24 or older and were also relatively self-aware about their play habits, at least as reported by the pre-interview questions. This self-awareness could indicate that a healthy attitude with gaming is something that grows with time or experience, with the worries of participants being based on their past relationship with games. Somewhat supporting this interpretation, prevalence rates for gaming disorder are higher in adolescents (Stevens et al, 2021; Kim et al 2022) so age as a factor could be worth further investigation when considering low mood and obsessive or avoidant play styles in future work.

Overall, there were 9 separate categories of reasons for play found throughout the diary entries. Comparing these reasons for play with the most common gaming motivation scales used in the general literature (Hughes, Flockton & Cairns, 2023) there are some similarities and some differences. The Player Experience of Needs Satisfaction scale (Ryan,

Rigby & Przybylski, 2006) uses Self-Determination Theory as a framework of gaming motivation, and so measures Competence, Relatedness and Autonomy. It also includes aspects of Presence/Immersion and Intuitive Controls. Aspects of Competence can be linked to the 'Achievement' reason for play in the current study, although they do differ slightly as Competence in the PENS has an element of manageable challenge ('My ability to play the game is well matched with the game's challenges.') whereas participants in the diary study focused more on overcoming a difficult challenge. This distinction is hard to make for certain due to the limited nature of the diary entries but there may be more to unpack around challenge in gaming and persistent low mood symptoms.

Also within the PENS, there is the element of Relatedness which focuses generally on relationship formation within the game rather than specifying between players or characters. Playing for Social purposes was reasonably common within the current study but these were exclusively with other players rather than in-game characters. Aside from this distinction, there does not seem to be any key differences in how these motivations are conceptualised. Autonomy as a concept can be defined as 'a sense of volition or willingness when doing a task' (Ryan, Rigby & Przybylski, 2006). This concept is harder to fit into the current study as a motivation because participants did not specify choosing a game because it offered a sense of autonomy. Some of the motivations can have assumed associations with autonomy (playing for enjoyment for example, or novelty/curiosity potentially being linked with interest) but autonomy itself is not clearly represented by one of the motivational categories in the current study. Similarly, Presence/Immersion and Intuitive Controls don't appear to relate to the 9 categories of reasons for play. In summary, the PENS appears to capture some of the motivations found in the current study but does not have a huge amount of overlap overall.

The second most common gaming motivation scale used in the general literature (Hughes, Flockton & Cairns, 2023) is Yee (2006). This scale consists of three main groups of motivations: Achievement, Social and Immersion. Each of these groups also has several subcomponents. Starting with Achievement, it consists of Advancement, Mechanics and Competition. The Competition component is probably closest to what the Achievement motivation in the current study represents, although there is limited data to go off. The Social component in Yee (2006) consists of Socialising, Relationship and Teamwork. There was not enough information to distinguish between these subcomponents in the current study but there seems to be elements of them all represented in a limited fashion at least. Finally, Immersion (Yee, 2006) comprises Discovery, Role-Playing, Customisation and Escapism. Discovery can be seen in the Novelty/Curiosity category in the current study and Escapism reflects some aspects of the Mood Management category with relaxation and escaping problems. Avoiding Work can also be seen to have some overlap with Escapism in Yee (2006).

Therefore, comparing the reasons for play given by persistent low mood players in the current study with scales used to measure motivation in a general gaming population, it can be concluded that some elements are definitely shared. Social gaming seems to be fairly similar as a reason for play, with the potential nuances for a persistent low mood population

factoring into the effect of social play on mood, which will be discussed in a later section. There may be small differences when considering Achievement as a motivation, although these are hard to unpack without further information about persistent low mood populations and what Achievement might represent to them. There are some other elements which seem similar to both the PENS (Ryan, Rigby & Przybylski, 2006) and Yee (2006), mainly Novelty/Curiosity and Mood Management which share some aspects such as playing out of interest or to relax. Interestingly, the most common motivation in the current study (Low Effort/Convenience) does not seem particularly well-represented in the general gaming motivation literature. Therefore, this desire for low effort gaming seems to possibly be characteristic of a persistent low mood population specifically which might make sense given the earlier discussion around persistent low mood and related effects on energy and motivation. Other reasons for play such as Achievement or Mood Management might be present in both populations but hold extra significance or emphasis for a persistent low mood population, as discussed in Study 2.

5.4.2 How does someone with persistent low mood feel before and after playing a game?

Before playing a game people with persistent low mood were most likely to feel negative, reporting feelings of low mood, tiredness and anxiety. After playing a game, they were most likely to report feeling positive or neutral, and similarly, positive mood changes or no mood changes were much more common than negative mood changes. Taken together, these findings suggest that gameplay rarely had a negative effect on someone's mood. Gaming was most likely to either positively influence someone's mood or not influence it at all. These findings fit with general research trends of gaming being helpful across multiple situations, including difficult life experiences (Iacovides & Mekler, 2019), depression (Ruiz et al, 2022) and persistent low mood (as seen in Study 2).

Additionally, the most common negative feelings reported after were being tired, frustrated by the game or anxious about work/duties. Tiredness is a common everyday experience and also often associated with depression (Stadje et al, 2016) so while this might be related to playing for too long, it is likely more indicative of a general state of being for participants. Being frustrated by the game is an example of a negative mood which comes directly from play and reflects dissatisfaction with the gaming experience, as suggested by Study 1. While there is some evidence to suggest that enjoyment of leisure activities is lower for people with depression (Blanco & Barnett, 2014), this may just reflect that gaming generally can result in frustration rather than being specifically related to low mood.

Feeling anxious about work/duties after play may reflect a sense of shame or an inability to relax for participants, which could link back to the reduced enjoyment from leisure activities already discussed (Blanco & Barnett, 2014). With regards to shame, it can be defined as an inwardly-focused judgement of the self as 'bad', often through a social lens (eg. the judgement of others) (Kim, Thibodeau & Jorgensen, 2011). Shame is associated with depressive symptoms (Kim, Thibodeau & Jorgensen, 2011) and so it could be expected that

this population would potentially feel shame about playing and stressed about the things they could have done instead. There is evidence of guilt about play interfering with the benefits of play during difficult life experiences (Iacovides & Mekler, 2019) and this echoes the themes of Study 2 regarding the wider perception of whether games are valuable. While 'guilty' was a separate feeling recorded (N=4), this doesn't necessarily mean that the work anxiety was unrelated to guilt, just that the participant did not spell out feeling guilty specifically in those cases. Future work might choose to focus on the relationship between guilt, play and avoiding responsibilities in relation to persistent low mood.

The most common positive feelings reported after play were feeling good, accomplished and satisfied with the gaming experience. These feelings seem to point to achievement potentially being one of the ways games can positively influence mood, which links back to Study 2 as playing for achievement was one of the five themes identified from the interview study. The mood-boosting effect of winning has also been seen in a general population (Rieger et al, 2014; Behnke et al, 2021). Feeling 'good' and feeling 'satisfied' are both quite general as positive terms. This relates somewhat back to Study 1, where participants tended to use general terms to describe positive moods and there were certain states which fostered these positive moods (such as a sense of escapism). Research into language use has also supported this finding, with biases towards more types of negative states being found across multiple languages (Rozin, Berman & Royzman, 2010). With these findings in mind, the types of positive words used throughout the current study might be less informative than the fact the feelings were positive.

In summary, participants generally felt negative before playing a game and positive or neutral afterwards. Along with the findings from Study 2, there is evidence that gaming seems to improve mood in persistent low mood populations.

5.4.3 Does someone's reason for play influence the effect a game has on their mood?

Addressing the third research question, it is worth considering the interaction between what prompts someone to play a game and how it affects their mood. Playing something because it is low effort or convenient was the most common motivation for play, and it is perhaps significant that there are no negative mood changes as a result of any of these sessions. Indeed, taken alongside the prominent theme from Study 2 about the appeal of these games for a low mood population, it is possible that this is a key way gaming helps people with persistent low mood. As discussed earlier, games may offer a low effort, high reward way for people to boost their mood.

As mentioned, the amount of negative mood changes overall was relatively low but no other reason for play had as high a 'success rate' for improving mood as playing games which are low effort, with the exception of playing out of habit. However, only four sessions in total were played because of habit and this is arguably conceptually similar to low effort in that it represents a passive reason for play, rather than an active drive such as playing with friends or playing to manage mood. It is perhaps worth noting that playing to pass time

(which could also be considered a passive reason for play) rarely led to a positive effect, although only 1/13 sessions had a negative effect. There is some evidence of a link between effort and rewards in gaming in a general population (Johnson et al, 2018) but when focusing on people with depression, there seems less of an inclination to increase effort with rewards (Kieslich et al, 2022). Future work could focus on unpacking effort, reward and gaming with regards to persistent low mood specifically to further explore how certain types of passive play seem to improve moods whilst others less so.

While the mood boost of achievement was a top positive feeling reported after play, playing for achievement only resulted in a positive mood change in half of the sessions. It is possible that this reflects the effect of successful achievement versus failure, with only winning resulting in the positive mood boost. Some of the participant quotes in the current study support this idea, and Rieger et al (2014) found in-game success was associated with mood repair. However, other work has found failure can be a positive experience for people too (Foch & Kirman, 2021) so for some participants, it may instead reflect a sense of manageable challenge rather than specifically winning versus losing. Manageable challenges in gaming have been linked to positive benefits in difficult life experiences (Iacovides & Mekler, 2019) and form part of self–determination theory, with an optimal challenge level being related to the fulfilment of competency needs (Deci & Ryan, 2000). It could therefore be that a manageable challenge results in a positive mood change and if the challenge is too great, the player is left frustrated, similar to how needs frustration in gaming is linked to negative affect (Tyack et al, 2020). Though 'Achievement' as a reason for play in the current study did not have clear elements of a manageable challenge, this was also hard to determine given the limited information from the diaries.

Playing for enjoyment had a positive effect nearly half the time (11/24) which, taken alongside one of the most common negative feelings reported after play being 'dissatisfied with the game/experience', might indicate that participants selected games they expected to enjoy, only to end up being disappointed. A diminished enjoyment of hobbies is often associated with depressive symptoms such as persistent low mood (Watson et al, 2020) and this could explain the relatively low success rate of playing for enjoyment, though it is also possible that sometimes gaming is just less fun than expected. There may also be an energy component here as sometimes the lack of enjoyment was due to tiredness or exhaustion, and tiredness is another factor associated with depressive symptoms (Stadje et al, 2016). Overall, it is likely that this dissatisfaction does represent an emotional reaction to gaming that might occur in a general population but there could be elements which exacerbate it in people with persistent low mood.

Perhaps surprisingly, social play only resulted in a positive effect some of the time (7/24 sessions). Social play can be beneficial to mood and wellbeing (Halbrook et al, 2017, Snodgrass et al, 2018) and social support can ameliorate the symptoms of depression (Santini, 2015) but there is also a cost associated with social interaction. Videogame play has been found to make loneliness worse in some cases where play is not intensive enough to have a compensatory effect (Snodgrass et al, 2018) and if in-game relationships replace in-person ones, then there can also be negative effects (Kowert, 2015). However, many of the

diary entries that involve a social experience and a negative mood change attribute the negative mood to factors outside of the social interaction, such as having to stop due to chronic pain (P39) or feeling overly tired afterwards (P85).

Tiredness is an interesting association with social play as it could suggest specific energies are 'used up' in social interactions for people with persistent low mood that don't necessarily apply to the general population. Earlier on, the tendency for people with depression to experience increased shame (Kim, Thibodeau & Jorgensen, 2011) was mentioned. There is also evidence that depression is associated with a higher sensitivity to social rejection (Kupferberg et al, 2016). Social gaming may therefore be more demanding for people with persistent low mood as they experience greater anxiety around judgement in social situations, requiring more energy to navigate them which has the potential to take a negative toll on their emotional wellbeing. There is some evidence to suggest that social interactions can be either beneficial or detrimental to people with depression depending on their current emotional state and needs (Swindle et al, 2001). There is also some research that suggests that how 'well' a social interaction goes has a stronger relationship to wellbeing for people with depression compared to the general population (Steger & Kashdan, 2009). Therefore, it seems likely that social gaming might not have the same benefits for a persistent low mood population as a general one. Future work could focus on exploring social play experiences further in the context of persistent low mood, including whether the social aspect itself has any negative influences.

5.4.4 Limitations and Future Directions

The goal of the current study was to explore the player experience of a persistent low mood population, including the potential influence on mood and interactions with reasons for playing specific games. The use of a diary plus interviews was designed to capture 'in the moment' data on moods and motivations, whilst also offering the opportunity to collect additional contextual information and clarifications through the interviews. Diary entries were intentionally kept streamlined to lighten participant workload but this has a tradeoff of potentially limiting responses or missing information which a more-detailed diary format would capture. There is also a tradeoff with regards to amount of detail at different points of data collection. For example, there is a relatively low amount of detail on types of games as there exist many different types and some were only played a few times by participants throughout the study. In contrast, more detail was provided on the reasons participants were playing games and a large range of feelings were experienced throughout the diary entries. Entries are short but the addition of interviews helps clarify some more ambiguous parts of the diaries, as well as give the opportunity for suspected patterns of behaviour to be discussed with participants themselves. This tradeoff means that some aspects may be overrepresented and others underrepresented, but the discussion section has tried to highlight when this may be the case for consideration in future work.

When interpreting the results of this study, it is worth considering the influence that specific individuals could have on the data and counts. While most moods and reasons for play were split across the sample, it was not uncommon for the same participant to have a

similar response to gaming sessions across the 9 days or to play the same type of game repeatedly throughout. These have been flagged throughout the results and discussion sections when relevant, but when considering the overall player experience of a persistent low mood population, it is worth bearing in mind that this work mostly represents a detailed understanding of a few participants with persistent low mood and is not intended to comment on prevalence of these patterns.

In terms of future work, there are several potential avenues of interest identified by this study. Firstly, the repeated finding of persistent low mood players finding a low effort gaming experience appealing could warrant further exploration, particularly in regards to whether it is a matter of risk avoidance, energy demands or level of reward available from gaming (or most likely, a mix). By unpacking this further, it could shed some light on the way gaming is viewed by persistent low mood players. Is it an easy way to gain energy or enjoyment, as suggested by some participants? Or is it a fallback option which acts as a crutch?

There is also potential to further explore the effect achievement has on mood. Compared to Study 2, there was less of an emphasis on consistent progress and more entries focused around specific achievements or competition. Perhaps this is due to the way the diaries were structured (asking for significant moments of play) or perhaps consistent progress has less of an effect on mood overall, and so is less likely to be recorded 'in the moment'. This idea is supported by consistent progress being linked to a mood flattening in Study 2 rather than the excitement or frustration of chasing active achievement. Achievement seems to play a role in how games can affect the mood of a persistent low mood population, and further work could unpack the details of this role and how it interacts with low mood specifically.

Finally, social play may play an important part in wellbeing generally and it would be worth exploring further what situations result in social play being beneficial versus it being detrimental to someone's mood. A lot of work around social play has focused on wellbeing more broadly (Halbrook et al, 2019) or anxiety specifically (eg. Dechant et al, 2020) but there could be interactions with low mood which have not yet been explored. For example, loneliness or social pressures could result in social play being a negative experience for someone with low mood, and this might possibly negate some of the benefits gained. Hints of this have been found in both Study 2 and the present study, and so asking about social play directly might offer additional insight.

5.4.5 Methodological Contributions

As mentioned in the results section, there were a few additional questions asked around the process of filling in the diaries at the post-study interview with participants. The goal of these questions was to learn more about how participants experienced the study with the hopes of informing future work. Though limited by context, there were indeed some key takeaways learned from these questions which might help inform future diary study research.

Firstly, most participants reported enjoying the process of filling out the diaries. Despite concerns around burdening participants who may be struggling with their mental health, none of the participants reported any particular struggles with the diary keeping and the majority found it positive in some way. Only one participant mentioned how it felt it might have made them play a bit less and this was stressed to only have a very minor effect by said participant. In terms of informing future work, this suggests that diaries are a suitable way to study certain behaviours in a persistent low mood population and that participants might not find them too stressful or imposing provided they are focused around hobbies or things they enjoy.

Secondly, participants were asked about when they filled the diaries in. One of the key limitations of diary studies which focus on specific time or event points is not knowing whether participants completed the diaries when they were supposed to. The current study seemed to suggest that participants are willing to be honest about these factors when they are asked which is beneficial to future studies as this could reduce the amount of ambiguity that goes into interpreting the results of diary studies. Similarly, participants were asked if anything unexpected or major happened during the study period. This also provided additional context, such as one participant playing much less because he had moved house. This context is particularly important when considering mood as participants may have their mood altered by external events outside of gaming which otherwise would go uncaptured. If future diary studies incorporate these kinds of questions about context, this would allow for deeper and more accurate understanding of the results.

Finally, the structure of the study seemed to work well in terms of both participant retention and capturing gaming behaviour specifically. Though the 9 days was chosen deliberately and through the consultation of past research, it was unknown whether this would be a large enough timeframe to capture gaming behaviour from the average participant. While one participant did only have 3 gaming sessions, the average number of sessions was 11.5 which provided enough data for the purposes of measuring mood. As well as the length of the study, the structure of having a pre and post-study interview seemed to work well to build rapport with the participants and this likely had a knock-on effect in terms of participant retention. It also aided with accurate completion of the diary as questions could be cleared up before data collection began, and the discussion of entries post-study also helped mitigate ambiguity.

Overall, this study helps contribute to methodology by providing some additional guidance on what may help strengthen a diary study design. It offers insight on what is not only acceptable but potentially enjoyable for participants in terms of diary workload, as well as suggestions for gathering additional context around the diary completion in a non-intrusive and participant-focused way. When it comes to studying gaming behaviour specifically, 9 days is potentially a suitable amount of time when considering qualitative measures and looking at event-specific behaviour.

5.4.6 Summary of Results

In summary, Study 3 aimed to look at what kinds of feelings were experienced by persistent low mood players before and after gameplay, whether games seemed to have a positive impact on mood or not, and finally what motivations were given for gaming when considering specific play sessions.

In terms of what kinds of feelings were experienced, feelings before gameplay tended to be negative and involved low mood, anxiety and tiredness among others. All three of these aspects are commonly found in persistent low mood and so likely reflect how this population specifically might be feeling before gameplay. After gameplay, participants were most likely to report feeling positive or neutral emotions. Positive feelings tended to be associated directly with the gaming experience, such as achievement or satisfaction. Alongside the finding that the most common type of mood change experienced by participants was a positive change in mood, these findings suggest that gaming often had a positive effect on mood for a persistent low mood population.

Considering RQ1 'What prompts someone with persistent low mood to play a game?', there were 9 categories of reasons for play developed. The most common reason for play given was that a game was low effort or convenient, which relates to one of the key themes from Study 2 where low effort games were desirable. Other key reasons for play included achievement, avoiding work, enjoyment, habit, mood management, novelty/curiosity, social reasons and to pass time. Some of these reasons for play overlap with gaming motivation work into general populations, such as achievement, social reasons and aspects of mood management and novelty/curiosity. Others are less well-represented, particularly the concept of choosing a low effort gaming experience. These findings could suggest that while there are a variety of reasons people with persistent low mood might play a game, some reasons might be particularly important to this specific population due to reduced energy or other factors.

The final research question concerned whether specific reasons for play were more likely to be associated with different kinds of changes in mood. Though the data for this section was perhaps more limited than the other research questions, there were still some interesting findings. Firstly, playing a low effort game resulted in no negative mood changes which suggests that it might be a particularly beneficial motivation for a persistent low mood population, as well as a common one. Secondly, playing for social purposes was less beneficial than other literature around social gaming might suggest. The impact of social gaming on persistent low mood specifically might be an area of interest for future work to unpack this further. Similarly, playing for achievement had mixed effects on mood which could also benefit from further examination to determine whether this is related to losing or some other factor.

5.4.7 Conclusions and Contributions to the Thesis Questions

Considering the thesis on the whole, Study 3 makes some key contributions to the overall thesis questions. Starting with 'How do games impact low mood?', the answer seems to be 'largely positively'. Unlike in Study 1, one of the most common negative moods

reported in the current study was 'low mood' and the most common change in mood was a positive one. Accounting for the number of 'no changes in mood', gaming seemed to either improve low mood or not actively make it worse. These findings also help address the overall thesis question of 'What effect do games have on people with persistent low mood?'. From the current study, it is clear that games seem to have more of a positive benefit than a negative one for a persistent low mood population.

Focusing on 'Why does someone with persistent low mood play games?', the current findings have offered up 9 potential categories of reasons for play given by participants with persistent low mood. Unlike Study 2, these reasons for play represent specific gaming decisions made 'in the moment' and so can be considered to represent naturalistic play to some extent. Therefore the results of the current study contribute greatly to understanding what might prompt someone with persistent low mood to play a game in their daily lives.

The results of this study and the other previous studies will now be discussed further in the context of the overall thesis research questions as we reach the final discussion.

6. Thesis Conclusions

Overall, the work contained in this thesis aimed to explore the player experience of people with persistent low mood. There is a considerable body of work which has examined the benefits of play in various aspects of mental health, wellbeing and difficult circumstances but this work focuses primarily on a general population and does not consider potential nuances of persistent low mood. Additionally, previous work has focused primarily on examining the potential relationship between depressive symptoms and addictive play and, while this work is useful, it lacks consideration of why this relationship might exist and overlooks other aspects of the player experience. By exploring the player experience of people with persistent low mood in more depth, some of these questions around addiction or other gaming harms could also be answered in the context of persistent low mood. The primary goal of this thesis was therefore to explore the following questions:

1. How do games impact low mood?
2. Why does someone with persistent low mood play games?
3. Do games have an overall positive or negative effect on people with persistent low mood?
4. How do people with persistent low mood feel about their gaming?

With these questions in mind, three studies were conducted to address different aspects of these questions. The first study aimed to explore how gaming impacted low mood and other aspects of wellbeing during the Covid-19 pandemic. While not focused explicitly on persistent low mood, the assumption was that participants would be experiencing low mood during isolation and there was a high likelihood of them using games to cope, allowing RQ1 to be explored. The findings of Study 1 highlighted some interesting patterns of play and mood but did not provide as much of a focus on low mood as expected. This study did contribute to research around coping during games and how games might impact mood during stressful life situations, but it was not able to shed much light on the research questions outside of RQ1.

To more directly address the research questions, the next study chosen was a semi-structured interview designed to ask people with persistent low mood about their play habits and experiences. This study contributed to better understanding how energy and motivation impact the gaming choices of persistent low mood players, as well as the potential positive and negative outcomes of play. Findings also highlighted several key attitudes towards play which are important to consider when looking at how games can be used to potentially help this population. This study helped contribute to understanding the player experience of persistent low mood players, how games might affect them and how they feel about their gameplay, filtered through the lenses of memory and reflection. However, there were still unexplored areas with regards to the immediate impact of gaming.

The final study aimed to investigate how gaming might impact mood in persistent low mood players 'in the moment' by recording specific play sessions in a diary format over a short period of time. This study helped provide insight into the more direct and detailed

impacts of gaming on mood, contributing to understanding RQ1 and RQ3. Additionally, motivations for play were recorded and these were cross-referenced with the emotional outcome of a play session, helping to answer RQ2. These findings have relevance to studies examining how gaming might impact mood, persistent low mood, and may provide a potential methodological template for future studies involving looking at gaming 'in the moment'.

The key contributions to knowledge will now be discussed in turn.

6.1 People with persistent low mood desire low-effort gaming experiences

One key original contribution of this work relates to the particular desire for people with persistent low mood to seek out games which are a) not demanding to play and b) provide some kind of familiarity or predictability in their gameplay. This finding is clearest to see in Study 2, where one of the themes developed was 'Finding consolation in predictable experiences'. In this study, participants talked in-depth about how when their mood was particularly low, they had a tendency to seek out a gaming experience which was predictable, familiar to them and didn't require much attention or effort. This experience was able to provide emotional benefits which, while may not put them in a positive mood, at least decreased the negative mood they were feeling in some way. The key appeal of gaming in this situation was that as a hobby, it was seen as relatively low effort/high reward compared to other activities they could engage with, helping address RQ2.

This pattern of motivation and play can also be seen in Study 3, where the most common motivation given for playing a game was that the game was low effort or convenient to play. Additionally, playing a 'low effort' game did not result in any negative mood changes in Study 3 and was associated with positive mood changes the majority of the time. The findings of this study are important because it shows that this pattern of play is something which can be captured 'in the moment' when examining how specific gaming sessions might impact mood directly, as well as being captured through interviews focused on general gaming experiences. Study 3's findings also more directly highlight the potential positive outcomes of choosing a game for this reason. In terms of the overall RQs, these findings help answer why someone with persistent low mood might play games and also whether gaming has a positive or negative effect on people with persistent low mood.

Study 1 by comparison does not appear to demonstrate this pattern of play, at least not as a major component. There were some reports of participants feeling low energy or low mood, but these did not seem linked to this low effort pattern of play. However, few participants in Study 1 actually mentioned experiencing low mood or depression which might therefore suggest that this desire for low effort games is something more unique to a persistent low mood population as it does not appear to occur in a period of high stress and uncertainty. There is also an alternative explanation which is that data collection in Study 1 occurred relatively early in the pandemic, in May 2020. Low mood is something which

increased as the pandemic went on (Rosa et al, 2022) along with other negative emotional impacts (Montero-Marin et al, 2023), and so at the point the study was conducted, all participants were not necessarily suffering negative emotions. The timing of the study might therefore account for the lack of this desire for low effort games.

The idea that low effort gaming experiences are something particularly sought by persistent low mood gamers is further supported by the lack of representation of this pattern of low effort play in other work which has studied wellbeing or mood in gaming. Previous work has highlighted the potential role of task demand in mood repair (Bowman & Tamborini, 2012; Bowman and Tamborini, 2015) with results suggesting that people may select games which provide the optimal demand for mood repair, although findings were somewhat inconsistent across studies. Outside of this limited lens though, there does not seem to be much other work which considers or reports a desire for low effort play despite focusing on the potential benefits of gaming. There is a similar concept in post-work recovery with the prioritisation of convenience over immersion when seeking a recovery experience (Mella, Iacovides & Cox, 2023) which aligns with the findings from Study 2 that suggest energy is the crucial component here. Low effort gaming experiences could be a valuable aspect to consider when researching low mood and videogames, especially given how motivation and depressive symptoms may interact in other contexts. If gaming can provide benefits to mood and other aspects of depressive symptoms without being high demand, then this highlights games as a potentially useful and accessible tool with which to 'self medicate' with.

One factor to note here is that, while there were some trends with regards to type of game, it is clear from both Study 2 and Study 3 that this 'low energy, low effort' style of play was not associated with any particular genre of game. 'Cosy games' have often been the focus of wellbeing and mood research (eg. Gunderman, 2024) and these games are often characterised by consistent progress, low stakes and self-pacing gameplay (Waszkiewicz & Bakun, 2020; Gunderman, 2024). It makes sense that these games might be particularly suited to offering this desired style of play to persistent low mood players, and indeed there were a high proportion of cosy games across all Studies. Study 1 had Animal Crossing: New Horizons as one of the most common games (though the timing of release is an important factor here), Study 2 had Stardew Valley and Study 3 had simulation games as the second most common genre, which encompasses many games associated with the 'cosy' genre. However, Study 2 had participants talk about how games typically associated with fast-paced and demanding gameplay (such as Diablo or CS:Go) were able to provide this 'low energy, low effort' gaming experience. Participants turned games into a passive experience by either playing the same dungeons repeatedly or playing game modes that they did not care about, resulting in the more detached playstyle. Similarly in Study 3, the genre of game did not necessarily dictate what kind of play experience each participant reported.

What these findings suggest is that type of game may not be as important when considering the gaming experience as what a game personally offers a player. It may be the perception and style of play which matters much more than features traditionally associated with genres. This viewpoint is crucial when considering both previous and future work which

uses genres as a way of categorising games for study. It may not be accurate to assume that action games are always considered high stakes, fast-paced experiences by players, and similarly 'cosy' games can be played in a very intense and active fashion. Some games might be more suited to offering these desired experiences but it seems that players might be more inclined to bend a game they enjoy to the kind of experience they want, rather than seek out a new game which might better offer this experience. The familiarity of a game seems to be essential to offering the 'predictability' component of the 'low energy, low effort' play pattern. Therefore, it is important to consider the role and benefit of qualitative work in gaming research as it is only through asking about the player experience directly that distinctions in play style and approach to games can be discovered.

Another component of this 'low energy, low effort' pattern of play relates to how persistent low mood players perceived games which offered different experiences. In Study 2, there were two distinct patterns of play which seemed to be reported by participants. The first is the 'low energy, low effort' pattern which is categorised by familiarity, predictability and consistent progress. The second pattern of play was more engaged and excited, and tended to be focused around games with strong narrative or strategic elements. In this case, the game offered elements which could be engaged with outside of the gaming experience itself, such as connecting with fanwork or researching different strategies.

In terms of attitudes towards games, the latter category of play was often mentioned or implied to be 'more rewarding' by participants in Study 2. There were also elements of this in the diaries for Study 3, with excitement being associated with a more active play style or intense gaming session. While these games were demanding and required energy which made them more difficult to engage with in the first place, they also tended to result in a stronger mood boost or offer eudaimonic benefits. Elements of this can be seen in work surrounding games which challenge perspectives, where there are emotional and philosophical benefits from games which challenge morality or make participants think about difficult situations (Whitby, Iacovides & Deterding, 2023). There are also possible links to work around failing in games, which highlights resilience and meaning as aspects which can be gained from challenging games (Foch & Kirman, 2021). Providing low mood players felt they had the energy and ability to engage with these more demanding games, they seemed to gain more benefits from them and view them as more 'meaningful' as a result. The 'low energy, low effort' games however tended to be 'old favourites' so, while these games were still seen as being very important and personally meaningful to the player, the type of meaning they were perceived as having was different. Additionally, the benefits of each individual play session were viewed differently due to this distinction in meaning.

Another aspect of attitudes towards gaming related to this low effort pattern of play is the idea of identifying as a 'gamer'. There were mixed responses to using 'gamer' as a self-identifier in Study 2, with some participants liking the exclusivity they felt came with it and others shunning the label for the exact same reason. However, related to this idea of passive play or playing out of habit, many participants in both Study 2 and 3 mentioned how gaming was 'just something I do'. There was a sense of gaming being a core part of their identity as a person and this seemed related to the fact that gaming was the default hobby

they chose to engage with when they were struggling with low mood. As well as potentially offering a sense of belonging which is beneficial to low mood (Sargent et al, 2002), this sense of identity as a gamer might offer comfort and add to the low effort nature of gaming, making it suited to this kind of passive engagement. This idea is supported by research into post-work recovery (Mella, Iacovides & Cox, 2023) who identified habit as a key appeal of the convenience of gaming after work.

In summary, this first finding suggests that one reason people with persistent low mood might play games is to seek out gaming experiences which are low effort to engage with and might potentially mood from a negative one to a more neutral one. Compared to other hobbies, gaming is generally perceived as being less effort than activities such as sport or reading, but more rewarding than other low effort activities such as watching TV. This pattern of play might be fairly unique to a persistent low mood population, although there is not enough evidence to make firm conclusions on this yet. It seems meaningful that this pattern of play is rarely represented in the literature around mood and wellbeing in a general population but further work is needed in order to draw firm comparisons.

In terms of the overall research questions, this finding helps address why people with persistent low mood might play games, how games might impact low mood and also some aspects of how people with persistent low mood feel about their gameplay. It contributes to the field of wellbeing and gaming research by highlighting a potential way that games can help people with persistent low mood that has not fully been considered before. It suggests there may be useful ways of categorising gaming experiences which can only be unearthed using qualitative methods, and these experiences may explain different desires and preferences of play in a persistent low mood population. Though this is qualitative work and there are limitations in how it can be generalised, low effort games being desirable and a key motivation in both Studies 2 and 3 suggests there is something of note to be explored further here.

6.2 Games seem to have an overall positive impact on people with persistent low mood and this drives motivation to play

RQ3 concerned '*What effect do games have* people with persistent low mood?'. Throughout all three studies, gaming appears to have more of a positive impact on persistent low mood players than a negative one. Though not focused entirely on low mood, Study 1 highlighted the potential for games to help during a period of high stress by providing fun, relaxation and other emotional benefits. Study 2 honed in on a persistent low mood population specifically and every participant emphasised the importance of gaming in their lives. Themes from Study 2 suggested that games were able to lift low moods, provide excitement through engaging gameplay or narratives and enrich participants' lives beyond the game itself by providing communities, a chance to explore identity and a way of self-regulating emotions. Study 2 also highlighted that while more intense periods of low mood were associated with less benefits gained from gaming, overall participants still viewed gaming as a net positive.

In terms of the wider literature, these results are supported by many studies which find similar benefits from gaming. Gaming has been shown to play an important role in coping (Kosa & Uysal, 2020) and relieving everyday stress (Pallavicini, Pepe & Mantovani, 2022) which is echoed in the findings from Study 1 which focused on gaming during the pandemic. In a general population, games have been shown to boost mood (eg. Rieger et al, 2015) and offer opportunities for emotional regulation skills to develop (Villani et al, 2018). Providing a sense of identity and community has been shown to be important to certain groups such as veterans (Carras et al, 2018), gender nonconforming people (Cantrell & Zhu, 2022) and teenagers (Jagannath, Salen & Slovàk, 2020). Until this point, these positive aspects of gaming remained relatively unexamined in a persistent low mood population and it is useful to know these benefits may also apply to this group when considering the overall impact games might have on someone with persistent low mood and associated symptoms. Though many benefits may not be unique to this population, they may hold a unique importance such as in the case of achievement or a sense of social success and belonging.

Study 3 was designed to examine the impact of gaming 'in the moment' through the use of a diary format intended to record moods and motivations for play, and the subsequent feelings after play. The findings of this study were that gaming overwhelmingly had either a positive impact on mood or did not impact mood. Only a small minority of gaming sessions resulted in a negative mood change, and the majority of these seemed to be down to tiredness or frustration with the game which was not strongly related to low mood specifically. In terms of the positive moods experienced, these included a huge range but the most common were a general 'good feeling' or a sense of achievement experienced from play. Both of these can be seen in the findings of other studies, where games were 'fun' in Study 1 and Study 2 had a key theme about games providing a sense of success and achievement to low mood participants. General work around games has sometimes highlighted the importance of achievement (Rieger et al, 2014; Yee, 2006) but the conceptualisation of achievement in games remains somewhat unexplored in terms of how achievement in games is actually experienced by players.

Considering the positive emotions experienced by players alongside the reported motivations from Study 3 and themes from Study 2, several conclusions can be drawn about why people with persistent low mood play games. As highlighted in the previous paragraph, playing for a sense of success and achievement does seem to be important to this particular group or people going through difficult life experiences (Iacovides & Mekler, 2019). Desire for achievement as a concept has been highlighted as a potential contributing factor to depression (Blatt & Zuroff, 1992) and so it makes sense that achievement might be something games are able to offer a persistent low mood group and that would be desirable in terms of a player experience. Games offer many chances for winning or tracking progression and this is often accompanied by positive moods (Rieger et al, 2014). Compared to many other opportunities for success (academia, work, sports etc) games are relatively low risk and easy to engage with, especially if someone is experiencing the low energy or motivation which is often associated with persistent low mood (Kornfield et al, 2020; Grahek et al, 2019). Study 3 demonstrates that there is still a risk as playing for a sense of achievement was

associated with a negative mood change sometimes, but this risk does seem small as it was in relatively few sessions. While this data might not be large enough to draw firm conclusions, it does suggest that this topic is worthy of further exploration.

Alongside this desire for active achievement, Study 2 highlights a related desire for consistent progress which seems to be related to the repetitive play mentioned in the previous section. Compared to the mood boost of achievement, repetitive play seems to be driven more by a desire to make an impact on something. This desire for progress also seems relatively novel in the literature, although it is comparative to some research surrounding depressive symptoms. Structured goals and regular tasks can form part of Cognitive Behavioural Therapy treatment for depression (Barton et al, 2023). Additionally, it is possible that passive play leads to a kind of 'detachment' which is viewed positively by players with persistent low mood as it enables them to stop ruminating on negative thoughts. There are suggestions of this throughout Study 2 and 3, and elements of immersion may be related to mood repair (Weber et al, 2020). Additionally, distraction from rumination outside of gaming contexts is associated with reduced depressive symptoms (eg. Nolen-Hoeksema & Morrow, 1993) which potentially supports the idea that progressive-but-passive play is desirable for the distraction and low effort engagement it offers. Other work into post-work recovery has found that participants suggest games offer an optimal 'cognitive involvement' which feels distracting but not demanding (Mella, Iacovides & Cox, 2023).

Aside from the desire for achievement, participants reported playing games to regulate or improve their emotions consistently across all three studies. In Study 1 this mostly took the form of reducing stress and seeking a relaxation or distraction effect, whereas Study 2 and 3 both included participants which explicitly stated they were playing in order to regulate or improve their emotions. This took the form of both seeking out a 'mood boost' and amelioration of low mood symptoms, leading to a more neutral mood state. Outside of a persistent low mood population, playing games for emotional regulation is reasonably well-established (Cheah et al, 2022; Yee, 2006) as well as emotional regulation skills sometimes being correlated with gaming experience (Villani et al, 2018). Additionally, the concept of mood management theory has been discussed throughout this thesis which suggests that people select media suitable for their emotional needs (Zillman, 1988). Study 3 found that playing for mood management purposes was relatively successful in terms of the impact on mood, with over half of the sessions resulting in a positive mood change and only a single session resulting in a negative mood change. Once again, this suggests that games might be a suitable tool for people with persistent low mood to manage and regulate their emotions and there is a possibility to explore this on a larger scale.

Social gaming was another key motivation across all three studies. In Study 1, a sense of social connection was one of the most common positive feelings reported which makes sense given the context of social isolation and the pandemic. Study 2 also had participants highlight the benefits and desire for social play, with more of a focus on how games had enabled people to make friends and offered a sense of social belonging. Social gaming is generally considered to be a common motivation for gameplay in a wider population (Yee, 2006; Ryan, Rigby & Przybylski, 2006; Cheah et al, 2022) but there may be unique

considerations when viewed through the context of a persistent low mood population. Membership to a social group may be particularly valued by people with persistent low mood due to a high sensitivity to social rejection (Cruwys et al, 2014) and a sense of belonging acting as a potential buffer for depressive symptoms (Sargent et al, 2002). Several participants in Studies 1 and 2 highlighted how games allowed for socialising without the pressure of having to think of conversation, something which also motivates social gaming in veterans (Carras et al, 2018). For this reason, gaming might be a useful tool for facilitating social interaction for people with persistent low mood.

Study 3 highlighted that while playing for social purposes was still a relatively common motivation, there were mixed impacts on the outcomes of social play in terms of mood. These will be discussed further in the next section when considering negative gaming experiences.

On the whole, evidence from all three studies suggests that games have an overall positive effect on people with persistent low mood. Games seem able to boost mood and other aspects of emotional and mental wellbeing through a variety of avenues, including achievement, emotional regulation and social experiences. These avenues also represent common motivations for play, both in a general and a persistent low mood population. Though not necessarily unique to a persistent low mood population, many aspects of these motivations may hold particular significance or benefits related to the symptoms and needs of persistent low mood. Future work around these avenues could help explore benefits further.

6.3 What makes for a negative gaming experience?

The other side of the thesis research questions not addressed so far concerns what makes for a negative gaming experience. Across all studies, negative gaming experiences seemed to be less common relative to positive ones. In Study 1, a few participants mentioned enjoying gaming less because it felt like it was now the only activity they were able to engage with due to isolation. This decrease in enjoyment due to lack of choice seems largely unrelated to persistent low mood specifically and so will not be discussed much further here, but it is worth noting that a lack of options is something that seems to negatively impact the gaming experience in times of stress.

Study 2 focused primarily on getting participants to reflect on gaming experiences, both previous and current. Some participants in this study mentioned how they felt they'd had an unhealthy relationship with gaming when they were younger, particularly with regards to addiction and potentially playing too much or feeling too obsessed with the game. This obsession was often related to competitive games, such as Overwatch or CS:GO. Previous literature focusing on depressive symptoms and gaming has highlighted the potential relationship between excessive gaming/gaming disorder and depressive symptoms (eg. Gema et al, 2024; Düll et al, 2024). However, addiction on the whole did not seem to be a particularly prevalent theme throughout this current body of work. In Study 1, a few participants did express concerns around playing too much but the prevailing sentiment was that gaming was 'acceptable' given the current lockdown situation and lack of other options. Study 2's participants seemed to talk about addiction as a thing experienced in the past when

they were teenagers, and indeed many studies which focus on depressive symptoms and gaming disorder do look at adolescent populations (eg. Nurmagandi & Suratmini, 2024).

From Study 2, it seems that participants with persistent low mood may be afraid of becoming addicted to games due to relying on them for emotional benefits, although none of the participants seemed to be currently addicted. Similarly from Study 3, participants did not highlight any motivations which would typically be associated with addiction. The closest motivation given is 'Habit' which was one of the least common motivations and tended to be expressed simply as 'this is what I'm playing at the moment' rather than an obsessive desire to play. There were also one or two participants who mentioned putting off work in order to play games, which could be seen as indicative of some kind of obsessive desire to play. However, this only happened a few times in total and the resulting play sessions were not abnormally long. It is possible participants could lie about their motivations for play, but this seems unlikely as they would have to also alter the amount of play they reported throughout their diaries. Additionally, participants were willing to be honest in the post-study interviews about other factors (such as not filling out the diary as desired) which would suggest they might also be honest about this.

This difference between the prevalence of addiction in the current work and in the literature can be potentially explained in several ways. Firstly, addiction was not a key focus of any of the questions in Studies 1-3 and so it arguably makes sense that this would present itself less as a focus in the data. It is still however interesting that other common patterns of player experience have been found in the data (mood management, desire for achievement etc) which also were not directly asked about. Secondly (and arguably, more likely), people with persistent low mood who were currently struggling with gaming addiction may have been less likely to take part in any of the studies due to the nature of addiction.

Moving onto other negative gaming experiences, Study 3 is also informative when it comes to considering what negative effect gaming might have on mood. There were relatively few sessions which resulted in a negative mood change and the resulting negative moods tended to be feeling frustrated at or disappointed with the game, feeling stressed that work hadn't been done, or feeling overly exhausted after play. Feeling frustrated or disappointed with a game is a normal part of the gaming experience, although there is some evidence that people with depression may derive less enjoyment from hobbies (Watson et al, 2020). Similarly, tiredness after play is not necessarily related to the persistent low mood but low energy is another symptom of depression (Kornfield et al, 2020) so this may explain the extremeness of the exhaustion described by some participants. Avoiding work was not a common motivation and it was restricted to few participants but avoidance behaviour is associated with depression (Trew, 2011) and so it is perhaps surprising this was not more common in the sample.

Looking at the motivations for play in Study 3, there is not sufficient data to make any strong claims about links between motivations for play and the subsequent effects on mood but there were some patterns of note. The two motivations which resulted in the most negative mood changes were playing for social reasons or playing for enjoyment. This would

seem to link to dissatisfaction with the gaming experience being one of the main reasons that gaming might negatively impact someone's mood as, if someone selects a game expecting to enjoy it but then is dissatisfied, it makes sense this would make their mood worse.

The finding of social play having mixed positive, negative and neutral effects is perhaps surprising in the context of the wider literature and also the findings from Studies 1 and 2. Social videogame play is generally considered to be beneficial to wellbeing and related concepts (Halbrook et al, 2017, Snodgrass et al, 2018). Study 1 outlined social play as hugely important in the context of the pandemic and social isolation, with 'a sense of social connectedness' being one of the main positive outcomes of play. Similarly, the social success that gaming offered participants in Study 2 was highlighted as hugely important and social play was rarely talked about negatively. Other studies have found a sense of social belonging can help reduce depressive symptoms (Santini, 2015) so it would make sense for this population to seek out social groups through gaming and to value social play.

What Study 2 did find however is that the benefits of gaming tended to be reduced if participants were feeling particularly low and were experiencing strong depressive symptoms. In terms of social play specifically, some studies have found that there is a necessary threshold that social play must reach or else people may actually feel more lonely (Snodgrass et al, 2018). If gaming experiences tend to be less satisfactory or beneficial anyway during periods of particularly low mood, then it follows that social gaming experiences might also be less satisfying and this would have a negative impact on mood in turn. Additionally, there might be pressures related to social interactions that are more unique to a persistent low mood population that explain this potential negative effect as well. As low effort play has been highlighted as preferential to a low mood population, it is possible that an added social element raises the effort and energy needed to engage with play. Viewed through this lens, social play can be seen as more 'high risk, high reward'.

Other elements related to the theme of 'Exacerbating the negative aspects of gaming' from Study 2 included increased guilt about play. This increased guilt can also be seen reflected in Study 3 where participants felt stress about work they hadn't done as they had played a video game instead, leading to guilt and regret. In terms of attitudes towards play, guilt seems to play an important part in the experiences of persistent low mood players. There are two elements of note related to this increased guilt. Firstly, guilt is commonly associated with depression (eg. Clark et al, 1994) and so it isn't surprising that people with persistent low mood might feel an inflated sense of guilt about play. Additionally, rumination during daily activities can reduce the positive effects of these activities (Huang et al, 2022) so it makes sense that worrying about work or dwelling on guilt after play would negatively impact the benefits gained from gaming.

The other element to consider in relation to increased guilt is the general perception of video games as a hobby. This 'valuation' was particularly noticeable in Study 2 where it was explicitly expressed by several participants in interviews, though elements can also be seen throughout Studies 1 and 3. In Study 2, participants talked about how they still felt gaming as a hobby was stigmatized and this contributed to the guilt they felt about playing. Some

participants stressed that while they personally valued video games equal to or above other hobbies in their lives, they felt gaming was negatively perceived by others when compared to their other hobbies, such as swimming or reading. This perceived judgement of gaming adds an interesting angle when considering attitudes towards gaming. Participants with persistent low mood seemed to have this discrepancy in attitudes, where they were adamant and passionate about how gaming was personally beneficial to them but then also expressed how other people did not view gaming this way. As mentioned earlier, a sense of social belonging can act as a buffer against depressive symptoms (Sargent et al, 2002) so if participants feel excluded socially because of their gaming habit, then this might have a negative effect on them. However, it is worth noting that the same participants who mentioned feeling judged also mentioned having friends they had met and made through gaming so it is perhaps more likely that, while they may feel judged by some people socially for gaming, it provides more social benefits than detriments to them on the whole. This conflict in the value of games is also likely not unique to a persistent low mood population. Similar views have been found in other work around difficult life experiences (Iacovides & Mekler, 2019).

In summary, when considering what makes for a negative gaming experience for persistent low mood players, several factors have been identified. Firstly, motivations going into play may be an important factor. If the entire motivation is to have a beneficial gaming experience, then frustration or disappointment is likely to be felt if this experience doesn't turn out as desired. There are elements of this pattern of frustration when considering work into Self-Determination Theory and needs satisfaction vs needs frustration (Ballou et al, 2024). This potential frustration of needs relates to the earlier discussion of the appeal of low effort gaming. If expectations and effort required to engage with a game is low, then there is also relatively low risk for an experience to be a negative one.

Secondly, there may be some interaction between gaming and the intensity of persistent low mood symptoms currently being experienced, which could result in a negative gaming experience. Participants in Study 2 reported gaining fewer benefits from gaming when their symptoms were more intense, alongside feeling more obsessive about games and also more guilt when they played. These findings suggest there are potentially some unique factors in persistent low mood players which might impact their gaming experiences and could be explored in future work. If games are to be used in order to potentially alleviate depressive symptoms, then it is important to understand the factors which might impede the benefits gained from gaming such as guilt or obsessive play. By better understanding the factors which might lead to obsessive play and addiction, this body of work can also grow.

6.4 Contributions and Future Work

The main contribution of this thesis work is one of knowledge. The primary goal was to develop understanding of the player experience of gamers with persistent low mood. Firstly, this work has identified several key ways gaming can impact low mood. Gaming largely seems to have a positive impact on low mood, although there are some reduced benefits for players when persistent low mood symptoms are particularly strong. Energy seems to be an

important factor, as does familiarity with the game and the ability to make consistent progress. Answering this research question helps contribute to the fields of mental health and gaming research, as well as having a secondary contribution of potentially informing elements of both serious and commercial game design.

This consideration of energy and effort brings us to the first avenue of interest for future research: the exploration of the 'low energy, low effort' pattern of play. From the current work, it seems that certain games are able to offer persistent low mood players a relatively high level of reward for the amount of effort needed to put in to play them. Study 2 highlighted some key features of games which might be able to provide this experience (predictable, familiar to the player, repetitive in gameplay nature) but it also made it clear that a large range of games were able to offer this experience to players. With this in mind, it might benefit future work to focus less on traditional genres of games and focus more on features of games and what they might offer a player. It is possible some genres of games are better able to 'promote' this kind of play (such as 'cosy' games) but by ignoring the potential positive impacts of genre less typically studied in this research area, there might be factors which can contribute to mood and wellbeing which are being missed. Therefore, future work might benefit from using a more 'open' framework when it comes to categorising and investigating games.

Further knowledge contributions are made to the fields of mental health and gaming research through the exploration of what makes a persistent low mood player play games. Though there is overlap with some motivations found in the general population, the desire for low effort games seems more unique to this particular population and again, seems to reflect issues with energy. By identifying the aspects of the player experience which motivate persistent low mood players, this helps inform how games might be used to alleviate symptoms of persistent low mood. Games that offer the experiences described in this thesis as desirable to persistent low mood players are likely better suited for helping with low mood. There do seem to be some motivations for play which are more successful at improving low mood than others, and this brings us to the next potential area of future research.

There is still more to be unpacked regarding the role of achievement and progress in persistent low mood and depressive symptoms. Previous literature (Rieger et al, 2014) and the current work has highlighted achievement in games as something which can boost mood and which is a key motivation for people playing games generally. This desire for achievement might be particularly important to a low mood population due to the association between depression and achievement (Blatt & Zuroff, 1992), and due to the fact that people with depression often struggle to achieve things in their daily lives. As highlighted by the 'low energy, low effort' pattern of play however, a sense of steady progression also seems desirable to low mood players and has a slightly different effect of levelling a low mood but not necessarily boosting it into a positive one. Therefore, future work could focus on establishing this possible distinction between active achievement and consistent progress further. It would be beneficial to understand how these concepts are viewed by persistent low mood players and whether there is a difference between them. Achievement might be a good avenue for using games to help ameliorate low mood symptoms but if it is higher risk and

higher demand, then the more passive and consistent form of progress might be more beneficial in the long term.

Finally, conducting more work on what makes for a negative gaming experience for persistent low mood players would help further expand knowledge on the player experiences of this population. The current work has highlighted some aspects which might be important in this but could be points of focus for future studies. Firstly, the question of videogame addiction and whether people with low mood and associated symptoms might be more susceptible to it is one which could be explored further with more specific studies focusing on this topic. While it was not a large theme across any of the studies' findings, there were still some participants who mentioned playing in an obsessive way and this did seem linked to how severe their low mood currently was. Alongside this, it appears that more severe low mood symptoms reduced other benefits gained from gaming, such as the ability to engage with more high effort games which offered greater emotional and eudaimonic rewards than lower effort games. Future work might focus on examining the severity of low mood and related symptoms experienced, and try linking this to different patterns and benefits of play more directly. Studies focusing on videogame addiction and low mood specifically would greatly benefit from adding elements which explore potential reasons for a relationship, rather than only examining if there is a relationship between these factors. By doing so, it might identify elements or traits which could then help this group. Additionally, understanding what leads to videogame addiction would in turn help the body of work focused on utilising games to help improve mood and wellbeing.

6.5 Professional and Player Recommendations

As well as the contributions to knowledge made by this work, there are also several recommendations that can be made to games industry professionals, stakeholders in mental wellbeing and to players themselves. Please note that many of these recommendations take the form of general considerations and guidelines rather than hard rules or suggestions as the qualitative nature of this work does not align with generalisability. Nevertheless, some patterns have been identified which are worthy of consideration.

6.5.1 Game Designers and Developers

Focusing on game designers and developers first, the research conducted throughout this thesis identifies a few clear aspects for game creators to consider if they want to make games which might foster positive moods and wellbeing. These aspects are: mode of play, achievement, social play, pacing and predictability.

Starting with mode of play, the most appealing kind of game to persistent low mood players seemed to be a convenient one. Many participants talked about preferring handheld devices, mobile games or games they could otherwise start up quickly and play without much effort. Games which are intended to help boost mood might therefore benefit from being easy to access and play both in terms of being available in a handheld mode and not having a long

starting process. Consider limiting the amount of menus needed before play and offering different modes of play where suitable.

Achievement is another aspect of gaming which seemed to have a positive impact on mood, though not always consistently. In terms of achievement, providing players with consistent feedback and a sense of progress seems to be a way of potentially influencing wellbeing positively. Having a game with consistent milestones, a good level of feedback for the player and smaller goals may foster a more consistent sense of achievement than a game with greater challenges which are less frequent and harder for the player to obtain. Though the latter can result in a greater mood boost overall, it is also less reliable and may decrease mood if the player is unable to meet the challenge.

Considering social play as a feature is a little trickier as much of the mechanisms behind the positive impact of social play lie beyond the game itself. Having said that, there are still ways to include social play which may encourage more positive player experiences. Including a range of different ways to communicate may help persistent low mood players who lack the energy for features such as voice chat but still wish to participate in social play in a lighter capacity. Similarly, including careful moderation features to minimise toxic interactions may also increase the chances of positive social interactions.

Pacing is an important factor to consider if the goal is to design a game which has a positive impact on wellbeing. Many participants talked about gameplay feeling stressful or unmanageable during a persistent low mood period and one way of mitigating that seemed to be putting the player in control of the pace. Avoiding timed sections, quicktime events or gating off certain interactions or actions after a specific point could help put the player in charge of their own gameplay pace. For example, the strategy games that were mentioned positively by players tended to allow for pausing between rounds of play rather than having time limits to take actions within. While fast-paced gaming and intense pacing can be appealing to persistent low mood players, it is less likely to be something they reach for when they are struggling and it can negatively impact mood in the same way as intense challenge.

Also related to pacing is the consideration of stopping points in games. Though the mechanisms behind addiction are complex and not yet fully understood, in the present work several participants mentioned how having games that offer clear stopping points allowed them to play for the amount of time that they wanted. Additionally, games without clear stopping points were often avoided due to being seen as a larger commitment by players. Both simulation games and narrative games were fairly popular with persistent low mood players and so these will both be used as examples. In simulation games, often there is some kind of day/night cycle or otherwise structured method of time or play. These can offer natural stopping points but they can also encourage continued play through each individual day being a small commitment. In contrast, narrative games can be harder on persistent low mood players as while they find the narrative elements appealing and rewarding, the length of play is often more unpredictable. Breaking down a narrative game into consistent chapters, avoiding long cutscenes without the ability to save and including plot 'markers' (such as

missions or text which flashes up on the screen) are all potential ways to introduce stopping points into the game.

The final element that will be discussed in detail here is predictability of gameplay, both in the sense of mechanics/pacing and in terms of story/game events. Pacing has already been discussed but repetitive and predictable mechanics are often already a feature of many key games and are usually what helps define a game type. There are no real trends as to what style of repetitive play may be beneficial for persistent low mood players but considering what gameloops are present and how frequently they occur are factors that can be designed around.

Some games are very successful at surprising a player with a plot twist or change in game type (such as Doki Doki Literature Club) and these can create meaningful opportunities for emotional connection and growth (Whitby et al, 2023; Foch & Kirman, 2021). However, the present work suggested that players who are going through a period of persistent low mood may be overly affected by emotional moments in a way the game creators did not intend. Additionally, predictable play was considered to be very important to several players and was talked about as a desirable feature for when energy was low. It is therefore reasonable to consider that a game created for wellbeing would benefit not from avoiding emotional moments, but by making sure that these are properly telegraphed to the player. Particularly if the game is including content around mental health or things which might be triggering, the desire to surprise a player may do more harm than good when it comes to persistent low mood.

Overall, the recommendations to game creators who are interested in creating games which promote positive moods and wellbeing is less about incorporating specific mechanics and more about thinking about overall player experiences being offered by the game. There is a place for games which are high pressure, intense and difficult but in terms of persistent low mood, these don't seem to be the kind of games sought out when energy and mood is low. One key takeaway from this work is that any type of game has the capacity to be a wellbeing game for someone if it can offer them a predictable and easy way to experience a sense of achievement, offer distraction from low mood and associated negative thoughts, and have a low barrier of entry for a player to engage with it.

6. 5.2 Stakeholders in mental health and wellbeing

There are several potential takeaways for professionals who work in mental health or otherwise have a vested interest in promoting digital wellbeing. Firstly, though it is not a new idea, this work helps highlight the positive impact digital gaming can have on someone's mood and wellbeing. Traditionally games have been seen through a negative lens by both the media and early gaming research into violent videogames (eg. Griffiths, 1999). In particular, work on depression and gaming has been focused around addiction (eg. Kim et al, 2022) and this is a growing concern for many clinicians (Lewis, 2024). However, the current body of work highlights many different ways gaming can potentially help improve the mood and related symptoms of people with persistent low mood. It is therefore important for mental

health professionals to not automatically assume that gaming is playing a negative role in someone's life. In fact, there may be ways to use gaming to help participants explore and experiment with things they are struggling with; for example, one participant in Study 2 mentioned how they struggled with perfection and their therapist recommended they play games they were bad at to get used to the idea of failing. This was reported positively by the participant as they started to view games as a safe space to fail in, and this allowed them to be more comfortable with failing in their daily life.

Games can also be a powerful social tool for someone who is struggling to form social connections and engage with interpersonal relationships. Across all three current studies, games were shown to offer a relatively low-effort and low-risk way of socialising for people with persistent low mood. Though not always successful, social gaming could boost mood and promote positive emotions within participants. Gaming therefore offers opportunities to encourage socialising to people who may otherwise struggle to maintain social relationships and this can have a positive impact on low mood.

This work can also offer insight for professionals who may be interested in creating a serious game which tackles persistent low mood and/or related symptoms of depression. Much of the advice in the previous section for game designers and developers also applies to the creation of serious games. Games which want to be appealing to players with persistent low mood should prioritise consistent feedback and opportunities for achievement, allow the player to set their own pace and offer clear stopping points to encourage regulation of play. There is no one ideal game type for persistent low mood players and this allows for variety when it comes to designing serious games. However, simulation or narrative games might pair the best with the traditional style of serious games which often have conversations or cognitive tasks as the primary form of gameplay. Including some strategic elements might also help with keeping people engaged with play which is a common concern of serious games.

Overall, this research helps shed some light on the positive role gaming can play in the life of someone with persistent low mood. Rather than being seen as something which is automatically detrimental to a person's life, gaming has the potential to help foster positive behaviours and moods in this population. There are concerns around addictive play and while these concerns have some merit, addiction does not seem to be a huge part of the player experience as explored here. Clinicians should therefore consider gaming in the context of how it can help someone with persistent low mood and how it can be used as a tool to help people experiment with helpful behaviours in a safe and low-stakes context.

6. 5.3 Players

This research has aimed to highlight some key aspects of the player experience of people with persistent low mood. In particular, it has shed some light on what aspects of gaming are a) appealing and b) potentially helpful to players with persistent low mood. It also offers some tenuous but nevertheless useful insights in how players with persistent low mood might foster a positive relationship with their gaming.

There were two key patterns of play identified here: one for when mood and energy were both low and one for when energy was more available to a player. When mood and energy were both low, players reported desiring predictable games with repetitive gameplay that was familiar to them. Engaging with these games might not boost mood to a positive state but it could potentially lift negative moods to a more neutral state, allowing for the person to then engage with other activities they didn't have the capacity for before play. When discussing this work with players, many found it relatively easy to identify their personal 'comfort' game. Note that this game did not have to be a slow-paced or 'cosy' game to offer this experience. Any kind of game has the capacity to be a comfort game to a player if they are engaging with it in a positive way. This pattern of play suggests the potential of using games to self-regulate periods of low mood in order to re-engage with other aspects of life.

The second pattern of play involves intense engagement with a game, usually a game with strategic or narrative elements. As a player, this kind of engagement can be more emotionally-rewarding but it is a little higher risk in terms of positive outcomes and also potentially more addictive than the first pattern of play. The key advice for players here is to reflect upon how they are feeling after engaging with games of this type. If they are consistently feeling frustrated or finding it difficult to stop playing when they want to, then they might want to disengage from the game for a while and seek out a different form of play or another hobby. If they feel generally positive and like they can play the game in their desired way without it encroaching on other aspects of their life, then this is likely a positive gaming experience.

Many players expressed guilt around playing games during periods of low mood, even whilst acknowledging they were unable to engage with any 'more productive' activities. As a player, it is therefore worth considering the positive benefits of playing games during these times of low mood and low energy, and allowing oneself to engage with play without the burden of guilt. Guilt may reduce the benefits gained from gaming but without necessarily resulting in more engagement with work/other tasks, diminishing the positive aspects of gaming. This can result in the player feeling like they have wasted their time or engaged in something they didn't deserve to. Rather than demonizing play, persistent low mood players should be realistic about what they can or cannot engage with during periods of low mood and allow themselves to enjoy hobbies without self-punishment.

Finally, players may find it useful to reflect on social play as a potential avenue for social engagement. People with persistent low mood may struggle with maintaining interpersonal relationships (Santini, 2015) or feel like social activities take too much energy to engage with (Kornfield et al, 2020). Playing games socially can offer a low-effort and low-stakes way for people with persistent low mood to socialise with others and this can help boost mood, providing play is voluntary and not out of a sense of obligation. This might be particularly useful for people who are more isolated or otherwise struggle to make friends.

Overall, the key advice for players is to reflect on their own personal gameplay patterns and relationship with games. Many participants found it useful or insightful to talk about and

keep track of their play throughout Studies 2 and 3, and engaging with something similar on a personal level may identify helpful and detrimental patterns in play. Additionally, gaming was often cited to be more rewarding both in terms of mood and other personal gains when compared to other hobbies such as watching TV. Games are easily accessible and often have a low barrier for entry which makes them well-suited to self-manage symptoms of persistent low mood. While they cannot and should not replace therapy, they can be a positive and meaningful part of someone's life.

6.6 Concluding Remarks

The ultimate goal of this thesis was to explore the player experience of persistent low mood gamers through examining how gaming impacts mood, motivations for play and attitudes towards play. Using a mix of qualitative methods, findings generally support the idea that games have an overall positive impact on both mood generally and persistent low mood specifically. Games were shown to boost a range of negative moods and the reasons given for playing games were often directly tied to the emotional benefits they offered and the avenues through which games were able to boost mood. Common motivations included playing for achievement, social reasons and to self-regulate negative emotional states. Though none of these are unique to a persistent low mood population, they may hold particular significance or be particularly beneficial to this population. Additionally, the most common reason for play given for participants with persistent low mood across studies was the desire for a low effort gaming experience. This motivation does appear to be more unique to a low mood population and may reflect associated symptoms of persistent low mood, such as low energy and low motivation. While gaming experiences remained positive on the whole, there was some evidence that fewer benefits were gained from gaming when low mood symptoms were more intense. Additionally certain reasons for play, such as for social interaction or for achievement, might impact mood negatively if the gaming experience ends up being dissatisfying. The key contributions of this work relate to providing valuable knowledge about how games interact with persistent low mood, what persistent low mood players find desirable and also some perspectives on gaming from this population. This knowledge can help guide future work in using both commercial and serious games to alleviate symptoms of persistent low mood, as well as better understand how games might affect a specific and common subset of the population.

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Appendices

A.1 Ethical Approval Letters for Studies 2 & 3

Note: For Study 1, approval was gained from QMUL

UNIVERSITY *of* **York**

Date: 14th April 2020

PSEC Application Ref: Helsby20200305

Dear Laura ,

Thank you for your recent application to the Physical Sciences Ethics Committee for the project entitled "The nature of video gameplay in a population with persistent low mood". I am pleased to inform you that the committee has reviewed your application and supporting documents and we approve the research to be conducted on the basis described on the application form, with the following conditions:

- that all data must be stored only on systems controlled by the University, and not on laptops
- anonymised data must not be stored on the same system as non-anonymised data
- all data must be, at least, password protected and preferably stored in an encrypted form
- as you suggested, by email, until University guidance says otherwise, interviews will be conducted

Please note the committee must be informed of any amendments to the protocol and/or participant information/informed consent prior to the research taking place. Please follow the amendments procedures using the reference above in any correspondence concerning this project in the future.

It is also your responsibility to ensure continuing conformance to the University of York's ethical policy over the life-time of the project.

Yours Sincerely,

Angus M. Marshall

On behalf of the Physical Sciences Ethics Committee

UNIVERSITY of York   Physical Sciences Ethics Committee

Date: July 7, 2022
To: Laura Helsby
Subject: Ethics Approval
PSEC Application Ref: Helsby20220624

Dear Laura,

Thank you for your recent application to the Physical Sciences Ethics Committee for the project titled "How does that make you feel?: A diary study into the effects of gaming on mood in a persistent low mood population". I am pleased to inform you that the committee has reviewed your application and supporting documents and we approve the research to be conducted on the basis described on the application form.

Please note the committee must be informed of any amendments to the protocol, participant information, or informed consent prior to the research taking place. Please follow the amendments procedures using the reference above in any correspondence concerning this project in the future.

It is also your responsibility to ensure continuing conformance to the University of York's ethical policy over the lifetime of the project.

Yours sincerely,

Siamak F. Shahandashti
Ethics Coordinator, Dept. Computer Science

On behalf of the Physical Sciences Ethics Committee

A.2 Information and Consent Forms for Studies 1-3

Queen Mary
University of London

Thank you for considering taking part in this study on gaming during COVID-19. Please review the following information and if you choose, provide your consent.

Participation in this study is entirely **optional**. If you choose not to take part, simply close this page and there will be with no disadvantages and you will hear no more about it. If you do decide to take part, you can enter a **raffle to win one of six £20 Amazon vouchers** and the end of the survey.

Study aim: With this study, we want to understand how people use games to manage their mood and well-being during the current COVID-19 pandemic. This includes board games, video games, card games, role-playing games, and/or other games you may have played.

Who can participate: To participate, you need to be at least 18 years old, have played at least 1 hour of games in the past week, and be proficient in English.

What to expect: We will ask you about how you have played and experienced games during the current pandemic. There are 9 open questions and 55 questions that ask you to indicate how much you agree or disagree with a given statement. This survey will take approximately 20–30 minutes to complete.

Possible risks: As we invite you to reflect on the reasons you are playing games, you may think of and report unpleasant or distressing events and experiences in your current life situation. This may cause you distress similar to thinking about or telling a friend or relative about these events and experiences.

Confidentiality: All information you provide will only be seen by the four researchers working on this project and not shared beyond them in non-anonymised form.

Anonymity: We will anonymise all data we collect from you, replacing all textual answers you give that may identify you (such as location names) with placeholders. Any other data that might identify you, such as your email address, will be kept confidential.

How we will use your data: The data collected in this study will be presented as part of academic papers or presentations. We may use excerpts from your answers as illustrative examples, but these will be anonymised and not attributed to you. Once we complete data analysis, we will store all data in an anonymised form online on the Open Science Framework (OSF) website, which allows other researchers to check on our analyses and potentially run their own analyses on the data. At that point, we will delete all other data we have of you. We will never publish or share any personal identifiable information such as your email address.

Legal basis: We will process your personal data for research purposes under Article 6 (1) (e) of the General Data Protection Regulation (GDPR): Processing is necessary for the performance of a task carried out in the public interest.

Your rights to your data: Under the GDPR, you have a general right of access to your data, a right to rectification, erasure, restriction, objection or portability. You also have a right to withdrawal. Please note, not all rights apply where data is processed purely for research purposes.

Withdrawal: You are free to withdraw at any point without any penalty or consequences. To do so, simply email the researcher with your ID number: **58544**. Your data will then be removed from the study.

Contact information: This study is run by four researchers at Queen Mary University of London and the University of York: Dr Jo Iacovides (jo.iacovides@york.ac.uk), Dr Sebastian Deterding (sebastian@digitalcreativity.ac.uk), Laura Helsby (ljh572@york.ac.uk), and Nick Ballou. If you would like additional information about the study, or wish to remove your data after the study has ended, please contact the lead researcher Nick Ballou at n.b.ballou@qmul.ac.uk. If this is unsuccessful or not appropriate, please contact the Queen Mary Ethics of Research Committee: research-ethics@qmul.ac.uk.

☐ I have read and understood the information above.

☐ I voluntarily agree to participate in this study.

☐ I know that I can withdraw at any time and there is no penalty for doing so.

☐ I know who to contact if I have any questions about the study or want to withdraw my data.

☐ The use of the data for research and publication has been explained to me.

☐ I understand that my data will be treated as strictly confidential and handled in accordance with the provisions of the GDPR.

☐ I understand that my data will be stored pseudo-anonymously on the Open Science Framework.

☐ I confirm that I am at least 18 years old.

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Information Sheet

Wellbeing and Gaming: Persistent Low Mood

Thank you for your interest in taking part in this research. The purpose of this information sheet is to provide details about the study and how we will use participant data.

What is this for?

I am currently doing a PhD at the University of York as part of the IGGI programme, focused on the interaction between videogames and wellbeing. As part of this project, my goal is to investigate how people with persistent low mood interact with videogames in terms of their preferences and attitudes towards gameplaying, as well as how gameplaying habits might be affected by persistent low mood.

Who can take part?

You will need to be over the age of 18, currently suffer or have previously suffered from persistent low mood and play videogames. Videogames here are defined as any type of digital game (including mobile games) and you do not need to be an expert or frequent player, just to have an active interest in playing them.

Do I have to do this?

Your participation is completely voluntary. If you are no longer interested in taking part, or you change your mind at any point, you will be able to withdraw your participation without having to provide a reason.

What will it involve?

The interview will take about an hour in total. You will be asked about your gaming preferences and habits, as well as some other questions about how gaming makes you feel. No questions will ask you for details about your persistent low mood, except for in relation to your gaming activities. You aren't required to answer any questions which you don't want to and you may withdraw from the study at any point. The interview will be recorded using Google Meet. After the interview, you will be emailed an £10 Amazon voucher to thank you for your participation in the study.

Who will see my data and where will it be stored?

Any personal information, such as your name and contact information, will be treated confidentially and will only be accessible to the project researcher, Laura Helsby, and supervisors, Dr. Jo Iacovides and Prof. Paul Cairns. You will be asked not to mention your full name or personal information during the session, while associated transcripts will be anonymised and stored with a participant ID code to protect your identity. This consent form will be stored securely in the project lead's office.

The recordings and anonymised transcripts will be stored on University of York's cloud storage systems. These data will be accessed by the researcher and supervisors. The University's cloud storage solution is provided by Google which means that data can be located at any of Google's globally spread data

centres. The University has data protection compliant arrangements in place with this provider (see https://www.york.ac.uk/it-services/google/policy/privacy/).

UNIVERSITY
of York

If the study is published in an academic journal or presented at a conference you will not be directly identifiable e.g. through the use of anonymised quotes. In accordance with University of York records retention policies, the data will be kept for a period of up to 10 years from the last requested access.

On what basis will you process my data?

In line with the University of York charter, which states that we advance learning and knowledge by teaching and research, the University processes personal data for research purposes under Article 6 (1) (e) of the General Data Protection Regulation (GDPR):

Processing is necessary for the performance of a task carried out in the public

interest Special category data is processed under Article 9 (2) (j):

Processing is necessary for archiving purposes in the public interest, or scientific and historical research purposes or statistical purposes.

Research will only be undertaken where ethical approval has been obtained, where there is a clear public interest and where appropriate safeguards have been put in place to protect data. In line with ethical expectations and in order to comply with common law duty of confidentiality, we will seek your consent to participate where appropriate. This consent will not, however, be our legal basis for processing your data under the GDPR.

What rights do I have in relation to my data?

Under the GDPR, you have a general right of access to your data, a right to rectification, erasure, restriction, objection or portability. You also have a right to withdrawal. Please note, not all rights apply where data is processed purely for research purposes. For further information see, https://www.york.ac.uk/records-management/generaldataprotectionregulation/individualsrights/.

Can I ask a question?

You are very welcome to ask questions about this information sheet or anything related to the research. You can ask questions at any stage before, during or after the study. You are also welcome to email the researcher (Laura Helsby: ljh572@york.ac.uk) or the supervisors (Dr. Jo Iacovides: jo.iacovides@york.ac.uk, Prof. Paul Cairns: paul.cairns@york.ac.uk) with any further questions.

If you have additional concerns about how your data is being processed, please contact the University's Acting Data Protection Officer at dataprotection@york.ac.uk. If you are concerned about the way in which the University has handled your personal data, you have a right to lodge a complaint (see www.ico.org.uk/concerns for more information).

Further resources

If you have any concerns about your persistent low mood or general wellbeing, please have a look at the following resources:

- University of York Student Health and Wellbeing: https://www.york.ac.uk/students/health/ - York Open Door Team: https://www.york.ac.uk/students/health/help/open-door/ - NHS Mental Health

Services: https://www.nhs.uk/using-the-nhs/nhs-services/mental-health
services/how-to-access-mental-health-services/

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of York

Consent Form

Wellbeing and Gaming: Persistent Low Mood

Participant ID (to be completed by researcher):

Please confirm:

☐ I am 18 or older
☐ I identify as having or have previously had persistent low mood
☐ I play videogames

Participant Statement

I .... agree to take part in the study under the
conditions laid out in the information sheet. This will indicate that you have read and understood the
above and that we will be obliged to treat your data as described.

Signed: Date:

Researcher statement

I .... confirm that I have carefully explained
the purpose of the study, what their data is to be used for, who is involved in the research, what will
happen to their data, and outlined any reasonably foreseeable risks or benefits (where applicable).

Signed:

Date:

Information Sheet

Wellbeing and Gaming: Persistent Low Mood

Thank you for your interest in taking part in this research. The purpose of this information sheet is to provide details about the study and how we will use participant data.

What is this for?

I am currently doing a PhD at the University of York as part of the IGGI programme, focused on the interaction between videogames and wellbeing. As part of this project, my goal is to investigate how a gaming session might affect the mood/feelings of someone with persistent low mood.

Who can take part?

You will need to be over the age of 18, currently suffer from persistent low mood and play videogames. Videogames here are defined as any type of digital game (including mobile games) and you do not need to be an expert or frequent player, just to have an active interest in playing them.

Do I have to do this?

Your participation is completely voluntary. If you are no longer interested in taking part, or you change your mind at any point, you will be able to withdraw your participation without having to provide a reason.

What will it involve?

You will need to keep an electronic diary for a total of 9 days. This diary involves filling out some short questions about how you are feeling before you play a game and why you chose to play that game now. After play, you will also be asked to describe how you are feeling, as well as if anything significant happened during gameplay. You can fill out as much or as little detail as you desire. It is expected to take you about a minute to fill out each entry before and after.

You will be asked to fill in this diary every time you play a different game. For example, if you play Stardew Valley for 5 hours then you fill in the diary twice (once before and once after). If you play for 5 hours but play 5 different games, you will fill in the diary ten times (once before and once after each session with a game).

In addition to these diary entries, you will be asked to take part in a brief interview at the start and at the end of the 9 days. Each interview will be approximately 30 minutes. These interviews will ask more generally about your gameplay habits and help add additional context for the diary entries you have completed.

No questions at any stage will ask you for details about your persistent low mood, except for in relation to your gaming activities. You aren't required to answer any questions which you don't want to and you may withdraw from the study at any point. The interview will be recorded using Google Meet and the diaries will be recorded electronically as a Google Doc. You will be compensated for your time with a £10

voucher at the initial interview phase, and an additional £10 voucher once you have completed the study.

Who will see my data and where will it be stored?

Any personal information, such as your name and contact information, will be treated confidentially and will only be accessible to the project researcher, Laura Helsby, and supervisors, Dr. Jo Iacovides and Prof. Paul Cairns. You will be asked not to mention your full name or personal information during the interviews, while associated transcripts will be anonymised and stored with a participant ID code to protect your identity. Once completed, all diary entries will be anonymised as well. This consent form will be stored securely in the project lead's office.

The recordings and anonymised transcripts will be stored on University of York's cloud storage systems. These data will be accessed by the researcher and supervisors. The University's cloud storage solution is provided by Google which means that data can be located at any of Google's globally spread data centres. The University has data protection compliant arrangements in place with this provider (see https://www.york.ac.uk/it-services/google/policy/privacy/).

If the study is published in an academic journal or presented at a conference you will not be directly identifiable e.g. through the use of anonymised quotes. In accordance with University of York records retention policies, the data will be kept for a period of up to 10 years from the last requested access.

On what basis will you process my data?

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Research will only be undertaken where ethical approval has been obtained, where there is a clear public interest and where appropriate safeguards have been put in place to protect data. In line with ethical expectations and in order to comply with common law duty of confidentiality, we will seek your consent to participate where appropriate. This consent will not, however, be our legal basis for processing your data under the GDPR.

What rights do I have in relation to my data?

Under the GDPR, you have a general right of access to your data, a right to rectification, erasure, restriction, objection or portability. You also have a right to withdrawal. Please note, not all rights apply where data is processed purely for research purposes. For further information see, https://www.york.ac.uk/records-management/generaldataprotectionregulation/individualsrights/.

Can I ask a question?

You are very welcome to ask questions about this information sheet or anything related to the research. You can ask questions at any stage before, during or after the study. You are also welcome to email the researcher (Laura Helsby: laura.helsby@york.ac.uk) or the supervisors (Dr. Jo Iacovides: jo.iacovides@york.ac.uk, Prof. Paul Cairns: paul.cairns@york.ac.uk) with any further questions.

If you have additional concerns about how your data is being processed, please contact the University's Acting Data Protection Officer at dataprotection@york.ac.uk. If you are concerned about the way in which the University has handled your personal data, you have a right to lodge a complaint (see www.ico.org.uk/concerns for more information).

Further resources

If you have any concerns about your persistent low mood or general wellbeing, please have a look at the following resources:

- University of York Student Health and Wellbeing: https://www.york.ac.uk/students/health/

- York Open Door Team: https://www.york.ac.uk/students/health/help/open-door/

- NHS Mental Health Services: https://www.nhs.uk/using-the-nhs/nhs-services/mental-health services/how-to-access-mental-health-services/

Consent Form

Wellbeing and Gaming: Persistent Low Mood

Participant ID (to be completed by researcher):

Please confirm:

☐ I am 18 or older
☐ I identify as having persistent low mood
☐ I play videogames

Participant Statement

I .... agree to take part in the study under the conditions laid out in the information sheet. This will indicate that you have read and understood the above and that we will be obliged to treat your data as described.

Signed: Date:

Researcher statement

I .... confirm that I have carefully explained the purpose of the study, what their data is to be used for, who is involved in the research, what will happen to their data, and outlined any reasonably foreseeable risks or benefits (where applicable).

Signed:

Date:

A.3 Debrief Forms for Studies 1-3

![Queen Mary University of London logo]

Thank you for your answers. The survey is now complete.

If you want to withdraw your data at any time, please email n.b.ballou@qmul.ac.uk with your random ID: **13003**.

By completing this survey, you are eligible to enter a **raffle for one of six £20 Amazon gift cards**. If you would like to participate in this raffle, please check the box below and leave your email address.

We are also interested to learn how people's use of games may change after social distancing measures have been reduced. **If you are willing to participate in a follow-up study** (at a to be determined date when the COVID-19 pandemic has lessened in severity) we invite you to check the box below and leave your email address.

Your email will not be used for any other purpose other than the option(s) you select, namely to notify you of having won the raffle and/or to invite you to the second wave of the study. It will then be permanently deleted.

☐ I would like to be entered into the raffle for 1 of 6 £20 Amazon gift cards.

☐ I consent to receiving an email inviting me to wave 2 of the study in a few months' time.

Note: For Studies 2 and 3, verbal debriefs were given

A.4 Additional Figures and Tables from all chapters

A. 4. 1 Study 1, from Section 3.2.1 Participants and Recruitment, p43

Country of Residence	Count
UK	114
England	52

United States	46
Canada	12
Germany	7
Finland	6
France	4
Scotland	4
New Zealand	3
Sweden	3
The Netherlands	3
Australia	2
Cyprus	2
Great Britain	2
Israel	2
Lithuania	2
Norway	2
Spain	2
Austria	1
Brazil	1
China	1
Czech republic	1
Denmark	1
Hong Kong	1
Hungary	1
India	1

Italy	1
Netherlands	1
Romania	1
Slovakia	1
Slovenia	1
South Africa	1
Switzerland	1
Togo	1
Ukraine	1

Table A.1: Reported countries of residence arranged from highest number to lowest number of participants

A. 4. 2 Study 2, from Section 4.2.1 Participants and Recruitment, p83

Participant Job
PhD student
Video games researcher
Part-time tutor
Narrative designer
Law student
CS student
PhD student
Business student
Masters environment student
CS student

Indie game developer
E-learning support worker
PhD student

Table A.2: A complete list of self-reported participant occupations from Study 2

A. 4. 3 Study 3, from Sections 5.2.1 Participants and Recruitment, p116 & 5.3.4 What prompts someone with persistent low mood to play a game?, p130

Participant Job
Apple genius
Chef
IT Support
Lecturer
Manager/Team Leader
Part time student, part time researcher
PhD student
PhD student
PhD student
PhD student/teacher
Teacher
TV assistant producer
Unemployed/Homemaker
Web developer

Table A.3: A complete list of self-reported participant occupations from Study 3

All Motivation Codes
Advertised/told about it
Already owned it
Avoiding work
Bored
Cheap to buy
Check on idle game
Competition
Convenient/don't need to get up
Cool mechanics
Curious about game
Dailies/weeklies
Difficult/Challenge
Distraction
Don't have to think to play
Easy/Simple
Familiarity/old favourite
Filling/Killing time (waiting)

Focus brain (for work)
Free to play/owned a while
Game playing atm
Genre they like
Get lost in something meaningful
Good at it
Have time free to dedicate to game
Lighthearted
Low stakes
Low stress
New content
Nostalgia
Not sure
Opportunity to progress/unlock things
Peaceful
Playing whilst doing something else
Quick to play
Requires strategy
Reward

Routine
Sense of accomplishment
Sense of control
Social time
Soothe anger
Soothes the soul
Streaming
Test before playing with other people
To chill/relax
To do better than when last played
To have fun
To keep busy
To level up character/grind
To slow things down
To try something new
Wanted something to do
Wanted to play again/more
Work break

Table A.4: All motivations for play from Study 3, listed from least common to most common

A. 5 Codebooks

A. 5. 1 Study 1

Moods Outside of Gaming	Definition
Stressed	Mental pressure or tension
Overwhelmed	As above but with an added element of it feeling intense and unmanageable
Anxious	Feeling of unease, worry or fear. Does not have to be clinical but may imply it
Unsafe	Feeling worried about being exposed to the virus
Bored	Loss of interest in something or lack of things to do
Monotony	As above but with an added intensity or lack of change
Isolated/Lonely	Feeling emotionally or mentally distant from people
Low mood	Mentions of feeling sad, low or otherwise 'bad' in an unspecified way
Depression	As above but uses the word 'depression' specifically
Tired	Feeling tired, exhausted or fatigued
Frustrated	Milder than anger. Frustration, grumpiness
Low energy	Lack of mental, physical or social energy to engage with tasks
Low motivation	Mentions a lack of motivation or things feeling futile/pointless
Agitated/Restless	Feeling restless, on edge or antsy
Angry	Rage
Neutral	Mood is mentioned as being 'normal' or 'even'

Positive	Good moods such as happiness, joy or other general positive terms
Low focus	Difficulties with concentrating

Positive Moods Experienced During Gaming	Definition
Fun	Game is described as fun or enjoyable in a general sense
Socially connected	Sense of closeness with other people, communities or otherwise warmth that comes from a social experience
Connections to NPC	As above but with virtual characters rather than real people
Relaxing	Reduction of stress or gaming described as calming, relaxing
Escapism	A general sense of escapism, either from life or to the game world
Absorbed	As above but with an added element of feeling absorbed, immersed or 'lost' in the game
Distracted	Gaming offering relief or distraction from negative thoughts or otherwise unspecified events
A Sense of Freedom	Sense of freedom, whether of choice or being able to explore
Achievement	Sense of pride or success at playing a game well
Challenged	Sense of finding a game difficult in a compelling way
Drive to improve	Urge of wanting to get better at a game
Cognitively stimulated	Sense of mental engagement, stimulation or focus

Less bored	Reduction in boredom
Sense of structure	Gaming providing a structure to someone's day or routine
Sense of normality	In the disruption of lockdown, gaming remains a constant which provides reassurance
Happy	Positive joyful mood
Comfort	A sense of comfort, reassurance or otherwise warmth
Nostalgic	Often uses the word 'nostalgia' explicitly. A sense of fondness or reminiscence prompted by a game
Funny	Sense of joy based around humour
Anticipation	Looking forward to gaming
Creative	Feeling or being creative
Catharsis	The releasing or lessening of other (extreme?) emotions through gaming, a form of relief
Excitement	Sense of enthusiasm and eagerness from play
Novelty	Gaming offering something new positively
Rewarded	Gaming as a reward after a negative experience, or being rewarding in its own right
Recharged	Gaming being refreshing or energising
Agency	A feeling of control from gaming
Less guilt	Reduction in guilt or sense that gaming is more acceptable during isolation
Mindless	Positive sense of low effort required to play

Negative Moods Experienced During Gaming	Definition
Dissatisfied	Enjoying gaming less than previously
Frustration	Feeling angry, frustrated or otherwise tense after playing a game
Guilt	Feeling bad about having played, either due to ignoring responsibilities or some similar reason
Addiction	Feeling addicted or otherwise dependent on a game
Stressful (gaming)	Finding a game stressful or overwhelming
Detached/Isolated	Feeling isolated, lonely or missing friends
Sad (gaming)	Sad
Exhausted	A game tires someone out
Dissociated	Being absorbed by gaming but in a negative way
Emotionally taxing	Being affected emotionally by a game in a strong, somewhat unspecified way
Restless	Restless, struggling to relax
Bad mood	A negative mood not covered better by another label
Pain/Strain	Person feeling pain or otherwise unpleasant physical sensations

Additional Codes
Gaming has improved mood
No effect of gaming on mood
Gaming has made mood worse
Not sure how gaming affects mood

A. 5. 2 Study 3

Before Feelings
Annoyed
Anxiety
Anxious about work
Arrogant
Awake
Bored
Brain fog
Calm
Cheerful

Competitive
Content
Crap
Disorientated
Distracted
Excited (for game)
Excited (unrelated to game)
Exhausted
Flat
Full of thoughts (about work)
Good
Groggy
Grumpy
Guilty
Hot
Hungry
Hyper
In pain
Irritable

Lazy
Low energy
Low mood
Low motivation
Malaise
Motivated
Neutral
Okay
Overwhelmed
Pretty terrible
Productive
Quiet
Ready to relax
Relaxed
Relieved
Restless
Sad
Sick
Sleepy

Stressed
Teary
Tired
Unchallenged
Uninspired
Unproductive
Unsettled
Unsure what to do/lack of mental spoons
Wasted time
Worried

After Feelings
Accomplished
Amused
Anxiety
Anxious about work
Apprehensive
Better
Bit bad

Boredom
Calmer
Cheerful
Clearer mind
Content
Couldn't focus on game
Defeated (lost game)
Deflated
Dissatisfied/frustrated by the game
Distracted
Emosh'
Empty
Excited (from game)
Excited (unspecified)
Exhausted
Flat
Foolish
Frustrated about work
Good

Groggy
Grumpy
Guilty about play
Hungry
In control
In pain
Less angry
Less anxious
Less fun than last time played
Less stressed
Less tired
Low energy
Low mood
Mentally energised
Mentally tired
Motivated
Neutral
No change
Normal

Okay
Optimistic
Overwhelmed
Played too much
Pleased from social time
Productive
Proud
Ready for bed
Ready for the day
Relaxed
Restless
Sad
Satisfied with game/experience
Self-confident
Shit
Sick
Sleepy
Stressed
Tired

Want to play more
Warm
Wasted time

Motivations	Definition
Achievement	Playing to achieve things specifically or to make progress in a game. Also includes challenge
Avoiding work	Procrastination
Enjoyment	Playing because they enjoyed it previously, it's a game type they like or for entertainment purposes
Habit	'What I'm playing at the moment'
Low effort/convenience	Playing because a game is easy to start playing, low effort or the game itself is not demanding
Mood management	Playing to relax, feel better or otherwise cope with emotions (such as distraction from anxious thoughts)
Novelty/curiousity	Game is new, has new content or is otherwise a new experience to the player
Social	Playing with someone else or playing for content purposes (eg. streaming)
To pass time	Break or waiting for something