The Case for Mitigation in Court Proceedings for

Gambling Disorder Related Financially Based Crimes

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Acknowledgements

Abstract

Purpose: When presenting with gambling related financially based crimes those accused are vulnerable within the criminal justice system as the courts tend not to recognise or accept gambling disorder as an acceptable defence. Moreover, mitigating factors are not routinely considered in imposing penalties. The crimes are the focus of attention, even when they are out of character for the defendant. Commercial factors, and the process of impaired control and constraints on choice in addiction, are downplayed. Imprisonment is common, and there is no option of prison diversion treatment orders for judges, which are routinely used for drug and alcohol related offences.

This thesis contains two related studies, and a structured, reflective learning journal. The first is a qualitative study examining the case for mitigation in court. It explores participant's experiences of the process of gambling disorder, and its potential to constrain choices, impair decision making and self-control. It also explores whether commercial factors such as product design, marketing, and loyalty programmes, as well as non-compliance with laws and regulations, significantly influenced participants behaviour and their crimes. The second study, a systematic review, examines six common structural characteristics of slot machines, to examine the potential influence of the product most associated with criminal cases.

Method: A total of thirteen participants (nine male and three female) were recruited, and they completed semi-structured interviews. Interview questions focused on the process of addiction, commercial factors, regulatory compliance, and experiences of the criminal justice system. For the systematic review six common structural characteristics were subjected to the analysis, which revealed 58 suitable studies.

Results: Reflexive thematic analysis revealed four themes: 1) Gambling disorder as mitigation 2) Industry influence 3) Experiences of crime 4) Experiences of the criminal justice system.

Results of the systematic review revealed effects on behaviour for all six common structural characteristics, in terms of increasing gambling behaviour, prolonging play, intensifying play, persisting, distorting perceptions in favour of continued gambling, increasing physiological arousal, and recruiting brain regions responsible for reward learning and motivation.

Conclusions: This study highlighted the need for greater mitigation in court for gamblers accused of financially based crimes, as well as demonstrating a need for the criminal justice system to respond more compassionately and flexibly in these cases. There are also implications for reform and policy to better protect consumers and prevent cases of financially based crimes coming before the courts in the first place.

General Introduction

Gambling

Gambling refers to placing something of value on an event that has the potential to result in a larger, more beneficial outcome (Petry, 2005). Risk is inherent in gambling.

It has a long history dating back to dice being found in an Egyptian tomb dating back to 3000 BC, a step of the Acropolis in Athens has a gaming board cut into it, and Roman life was rife with gambling (France, 1902). The appeal of gambling crosses cultures and generations, and its popularity (and risk) may be related to a fundamental aspect of life: its uncertainty.

While its popularity and acceptability has waxed and waned over time, it is currently going through mass market growth across the world, in the context of globalisation and deregulation (Banks et al., 2019; Van Schalkwyk et al., 2021). Gambling has become technologised and is moving out of traditional land-based locations to online, making it more accessible than ever. Products have advanced to make them more immersive and profitable, but continuous in nature, rapid, and encouraging betting at high frequency for prolonged periods of time (Dow Schull, 2012). Online gambling means that operators can track each transaction, profile customers, and use algorithms and artificial intelligence to market to consumers in ever more sophisticated ways. While the accounts of those gaining an edge over operators are restricted or closed, operators rely on loss making players to extract maximum value per available customer, and maximum time on device (Dow Schull, 2012). Different strategies are used to accelerate these losses, including focusing marketing on those experiencing the heaviest losses (Gambling Commission, 2022). The elevated risks of online gambling are now well documented (e.g., Hing et al., 2022).

Societies have long understood that gambling in excess leads to adverse consequences, which can be devastating, including the loss of resources and property, family and friends, employment, educational opportunities, personal freedom, deterioration in personal health and self-esteem, and death by suicide (Banks et al., 2019). Muggleton et al. (2021), using financial data from 6.5 million individuals over 7 years found that gambling in excess is associated with substantially increased mortality.

It is therefore subject to laws (The Gambling Act, 2005) and regulations via The Gambling Commission in Great Britain. The Gambling Act (2005) contains three core licensing objectives:

- Protecting children and other vulnerable people from being harmed or exploited by gambling;

- Preventing gambling from being a source of crime or disorder, being associated with crime or disorder, or being used to support crime; and

- Ensuring that gambling is conducted in a fair and open way.

Therefore, laws and regulations are designed to protect people from harm or being exploited, and to prevent crime being associated with gambling, or being used to support crime. To safeguard against this, operators are meant to, for example, undertake source of funds and source of wealth checks, and ensure thresholds are in place to ensure customers can gamble based on their affordability to do so. However, the major operators in Britain continue to be subject to large fines by the regulator for major failures in compliance with laws and regulations, which suggests that all three licensing objectives are commonly disregarded.

According to some reports the majority of operator profits are extracted from those experiencing gambling harms (e.g. House of Lords Select Committee Report (2020), and disproportionate profits are extracted from the most deprived communities (Forrest et al., 2022). This has led to a clash of goals between industry growth/profits, and the goals of public health. Public health approaches to gambling harms tend to extend beyond individual player factors, to the material contribution of gambling products, environments, operator practices, and laws and regulations (e.g., Van Schalkwyk et al., 2021). Operators have been accused of utilising a 'playbook' common to harmful commodity industries, to deflect from reform and regulation (Lacy-Nicols et al., 2022). This includes the implementation of 'responsible gambling', a mantra and messaging which focuses responsibility to refrain from gambling harm at the individual customer level, rather than more upstream determinants such as operator products, environments and practices (Livingstone & Rintoul, 2020). The industry fund all gambling public awareness messaging and campaigns (which focus on individual self-control), influencing public perceptions of gambling harm, and its causes. The judiciary are members of the public, who have not been exposed to alternative explanations.

Gambling and Crime

Increasingly, gambling to excess is being seen as a significant criminogenic factor (Smith and Simpson, 2014). Those with gambling disorder are much more likely to report engaging in criminal behaviour than those without the disorder (Lind et al., 2021; Blum and Grant, 2022). Amongst people with gambling disorder, the prevalence of criminal activity ranges from 25 to 43 percent (Turner et al., 2016). Amongst the prison population gambling problems are seen in a quarter to a third of offenders (Perrone et al., 2013; Banks et al., 2020), although this may be an underestimate as gambling-related crime is under reported (Smith et al., 2003). In addition, gambling behaviour is common within prison behaviour, with 45% of prisoners reporting they gamble while in prison. The most common motives reported were entertainment, excitement, or sense of challenge and to win prizes (Smith et al., 2022).

The licensing objective to prevent gambling being associated with crime is due to crime and gambling having a long history (Banks & Waugh, 2019; Spapens et al., 2008). For different reasons, such as religious, moral, and social, gambling has been outlawed in some of its forms or entirely (e.g. Brenner & Brenner, 1990). Ferentzy & Turner (2009) describe how gambling has a strong tendency to attract swindlers, card sharks, con artists, sports and horse race fixers, money launderers, and

organised crime. The two are also connected on the individual level because sensation seeking, impaired impulse control, and other psychological traits predispose both to crime and high involvement in gambling (e.g. Mestre-Bach et al., 2018). Some researchers have described particular subtypes of gamblers with a history of illegal behaviour such as those characterised by high levels of impulsivity (e.g. Mestre-Bach et al., 2018), those who commit violent crimes more than expected (Roberts et al., 2016; Adolphe et al., 2019), and those with very long histories of offending, a lack of remorse, and general deceitfulness whose behaviour may be better explained by anti-social personality disorder (Blum and Grant, 2020).

The most common association described in the literature is a direct or instrumental connection where financially based crime (e.g., fraud, theft or embezzlement) is committed to pay off gambling debts after lines of credit and financial resources have been exhausted. The risk for these crimes is raised when the gambler has access to funds through their employment. (Adolphe et al., 2019; Blum and Grant, 2022; Brooks & Blaszczynski, 2011; Turner et al., 2009; Binde et al., 2022). Gambling is cited as a relatively common reason for committing embezzlement and similar crimes in the workplace. For instance, Warfield (2013) conducted a study of fraud committed in financial institutions in Australia and found that more than half of the cases were motivated by gambling. An American investigation of employee thefts in cases where sums exceeded $100,000, and where the motivating factor was known, concluded that about a third of these cases were related to gambling (Marquet International, 2013).

Studies have consistently found that such crimes are often committed over several years and tend to escalate in severity. They are committed more frequently, more habitually, and add to an increasingly large sum of money wrongfully appropriated (Adolphe et al., 2019; Binde, 2016; Lind et al., 2015). The sums misappropriated can be very large (Marquet International, 2013; Warfield, 2013).

However, the criminal behaviour of those with gambling disorder who commit financially based crimes to fund gambling and pay off debts are different to traditional subtypes, with their criminal behaviour most often described as "out of character". They lead normal lives, with jobs and families, and they have not drawn the attention of the authorities (Smith and Simpson, 2014). Binde et al., (2022) examined court cases in Sweden of gambling disorder related financial crimes in the workplace. A notable finding was that middle-aged women with no previous criminal record were overrepresented compared with women in national statistics on crimes in general.

These findings make sense as only so called 'well-adjusted' citizens would be offered positions of trust in companies. Studies show they hold such positions for many years before they start to gamble excessively and got the idea to 'borrow' money from their workplace. Individuals are often caught spiralling downward after escalating gambling losses, leading them to commit crimes, which eventually leads to their convictions (Binde et al., 2022).

If those who commit gambling-related financially based crimes have otherwise led normal lives it raises questions in terms of explaining and understanding this behaviour, which may extend beyond a focus on individual traits. For example, to the

process of diminished control and the shift from reward-seeking to compulsion (Blum & Grant, 2017) following extensive interaction with addictive gambling products, and to the material role of the gambling operators (e.g., Dow Schull, 2012) and lack of safeguards in laws and regulations.

Response of Criminal Justice System

Some have argued that the courts overly depend on the medical model of gambling disorder, which sees it as primarily caused by a dysfunction within the individual (Smith and Simpson, 2014). The gambling operators and their allies have robustly supported this position, which has meant that the courts do not consider the role of gambling providers and governments (Hing, 2002).

Therefore, those with a gambling disorder facing the courts accused of financially based crimes, face challenges. Brooks and Blaszczynski (2011) reviewed seventy court of appeal cases in England and Wales that involved harmful gambling and the contribution of gambling debts in financially based crimes. They found that all accused in these cases were found accountable for their crimes. They concluded, "the judicial system does not recognise or accept the condition as an acceptable defence or mitigating factors to be taken into account in imposing penalties" (Brooks and Blaszczynski, 2011, p90).

Judges tend to simply follow sentencing guidelines for the crimes (typically fraud, theft, or embezzlement), even when the defendant has no criminal background. There are no community treatment orders for judges to use to divert gambling-related defendants away from custody, and no treatment programmes exist in the prison service to rehabilitate this group, as is customary for alcohol and drug related offences. Given that gambling disorder is increasingly seen as a significant criminogenic factor (Smith and Simpson, 2014; Turner et al., 2016), the criminal justice system appears to lag in its approach to these cases, compared to offences committed while suffering from an equivalent addiction.

Crime and responsibility

There is consensus that those with a gambling disorder who commit financially based crime must bear responsibility for their actions (e.g., Morse, 2013; Blum & Grant, 2017, Blum & Grant, 2022). However, while gamblers meet the *prima facie* threshold for criminal responsibility, as they are deemed to act for intelligible reasons, there may be arguments to be made for the law to excuse a defendant or provide mitigation on a case-by-case basis. Smith & Simpson (2014) outline such an approach in Canada where they act as expert witnesses to a seemingly more receptive judiciary. Therefore, what might mitigation involve for those accused on financial crimes linked to a gambling disorder?

Neuroscientists and clinicians disagree on the severity of impairment to inhibitory control and the extent to which addictive behaviours are governed by automatic processing, but at the time of peak craving, there is consensus that the brain changes and these behaviours are extremely difficult to resist (Carter et al., 2014).

There are alternatives to the medical model of gambling disorder. These emphasise significant alterations in decision-making, personality, and reward pathways because of learning processes (e.g., Lewis, 2018) from a range of influential determinants, including commercial ones.

The current study

Examining a broader range of determinants for financially based crimes related to gambling disorder may have implications for how the criminal justice system consider mitigation and respond to these cases. For example, there is evidence that some gambling products have been carefully designed to make them more immersive, engaging, and addictive (Dow Schull, 2012; Murch et al., 2020).

Over half of those who regularly use slot machines either have, or are at risk of, 'problem gambling' (Livingstone & Wooley, 2007). The rates of gambling problems are 3 to 4 times higher for slot machine players than for other gambling activities (Williams et al., 2011). To explain the differential risk of the slot machine, research has turned to specific 'structural characteristics' (i.e., design features; Parke & Griffiths, 2007). This evidence suggests that rather than the traditional focus on individual risk factors for gambling and crime (such as age, gender & impulsivity – which tends to ignore the role of the activity), there are factors relating to the product worthy of investigation.

The synergy of addictive products, a continuous use online platform, and marketing have revolutionised gambling, particularly online where operators can access customers wherever they are with targeted marketing, inducements, advertising, and push notifications (Hing et al, 2020). Operators have been accused of targeting those who experience heavier losses, with marketing and loyalty schemes deployed to keep their most 'valued' customers and accelerate their losses. Laws and regulations, designed to protect the vulnerable from harm, and ensure operators keep the proceeds of crime out of gambling, have been brought into question, with operators regularly receiving record regulatory fines for failures.

The argument advanced here is that there may be a stronger case for mitigation in court proceedings involving financially based crimes associated with gambling disorder. These arguments are based upon the central idea that courts may need to move beyond the model of individual responsibility, to the material contribution of gambling operators and our laws and regulations, and lack of compliance with them, when responding to these cases, as well as the process of diminished control during addiction. In sum, a greater case for mitigation could be made by examining:

- The process of intensive interaction with addictive gambling products and whether they impair a defendant's rationality or subjectively experienced volition
- Products that have 'advanced' to such a degree that they are specifically addictive and that these design features influence play irrespective of the player's psychological functioning

- Operator practices such as marketing and loyalty programmes that may contribute to the process of diminished control, the exhaustion of personal finances, and the commissioning of financially-based crimes
- The extent to which commercial and political factors can combine to influence 'well-adjusted' gamblers with no previous convictions and whom would otherwise be unlikely to come to the attention of the authorities
- Whether operators are disregarding laws regulations designed to protect against gambling harm and keep gambling from being associated with crime

In addition, there may be a stronger case for mitigation where the criminal justice system cannot carry out its aim of rehabilitation i.e. where there are no prison or probation rehabilitation programmes for those who commit gambling disorder related offences.

It is in this context that the study in chapter one (page 12) seeks to explore the case for mitigation in court proceedings for gambling disorder related financially based crimes. In doing so it will explore how equipped the criminal justice system is to fairly manage, and respond to, these cases.

This is a qualitative study, which has the following research aims:

- Using the experiences of those who have had a gambling disorder to explore the features which may have contributed to impaired control of, and responsibility for, financially based crimes.

- To explore perceptions of the role of commercial products and practices, the regulatory framework, gambling disorder, and financially based crimes

- To explore the implications for reform to reduce gambling related criminal activity and reform of the criminal justice system to offer a more effective response

The second study (chapter two, page 56) turns attention to the product most associated with financial based crimes, the slot machine. It is a systematic review of the structural characteristics (i.e. design features) of slot machines. This review uses experimental and quasi-experimental research to identify the key structural characteristics of slot machines and evaluates their influence on players and play persistence.

The third and final chapter (page 103) is a structured learning journal and reflection log related to the journey to becoming a researcher practitioner.

Chapter One:

The Case for Mitigation in Court Proceedings for

Gambling Disorder Related Financially Based Crimes: A Qualitative Study

Introduction

Gambling Disorder

Gambling is defined as placing something of value at risk in the hope of gaining something of greater value (Petry, 2005). It is a widely prevalent behaviour that has been popular for millennia and has undertaken a revolution in expansion in recent years due to technological advances and the liberalisation of laws. A sizable minority (1-2%) of the population have a gambling disorder at any one time, with around two to three times as many people experiencing less serious subclinical problems (Calado & Griffiths, 2016; Williams et al., 2012). Once you look within the gambling playing population you see significant increases in prevalence and harms depending on variables such as age, gender, location of gambling, and type of product played (Abbott, 2017).

Harms to the individual include financial, psychological, relational, and social. Such harms extend beyond the individual and include 'harm to others' such as loved ones including children, as well as harms to communities such as the impact of extracting money from poorer areas, and of worsening inequality in wider society (Orford, 2020). As a result, many have called for gambling to be addressed as a global, public health issue. One of these is the World Health Organisation (WHO) where it is placed alongside alcohol and drugs in its global forums and annual WHO meetings on the public health implications of addictive behaviours (Abbott, 2020). The World Health Organisation consider the burden of gambling harm to be of similar magnitude to major depressive disorder and alcohol misuse and dependence.

Gambling harm lies on a continuum of severity, with gambling disorder at the severe end. The term Gambling Disorder is used in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, 2013) and sits alongside the traditional addictive disorders for the first time and is known as the gold standard for determining diagnosis. The criteria for DSM-5 gambling disorder (American Psychiatric Association, 2013a) are as follows:

Persistent and recurrent problematic gambling behaviour leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:

1. Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
2. Is restless and irritable when attempting to cut back or stop gambling.
3. Has repeated unsuccessful efforts to control, cut back, or stop gambling.
4. Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).
5. Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed)

6. After losing money gambling, often returns another day to get even (chasing ones losses)
7. Lies (to family members, therapist, or others) to conceal the extent of involvement with gambling.
8. Has jeopardised or lost a significant relationship, job, or educational or career opportunity because of gambling.
9. Relies on others to provide money to relieve desperate financial situations caused by gambling.

Gambling and Crime

Increasingly, gambling disorder is being seen as a significant criminogenic factor (Smith and Simpson, 2014). Those with gambling disorder are much more likely to report engaging in criminal behaviour than those without the disorder (Blum and Grant, 2022). Amongst people with gambling disorder, the prevalence of criminal activity ranges from 25 to 43 percent (Turner et al., 2016). Amongst the prison population gambling problems are seen in a quarter to a third of offenders (Perrone et al., 2013), although this may be an underestimate as gambling-related crime is under reported (Smith et al., 2003). In addition, gambling behaviour is common within prison behaviour, with 45% of prisoners reporting they gamble while in prison. The most common motives reported were entertainment, excitement, or sense of challenge and to win prizes (Smith et al., 2022).

The criterion of 'illegal acts' was in the DSM-IV for pathological gambling (the precursor for gambling disorder). While it was subsequently deemed to lack diagnostic value, it is considered as an important marker of gambling severity as those who commit criminal acts are more likely to have more severe gambling problems (e.g. Mestre-Bach et al., 2018; Strong & Kahler, 2007). Offences are typically non-violent and include crimes such as fraud, theft, embezzlement, breaking and entering, larceny, and selling drugs (Adolphe et al., 2019).

There are different ways in which gambling has been associated with crime, although evidence for a causal link is uncertain (Adolphe et al., 2019). The most common association described in the literature is a direct or instrumental connection where financially based crime (e.g., fraud, theft or embezzlement) is committed to pay off gambling debts after lines of credit and financial resources have been exhausted. The risk for these crimes is raised when the gambler has access to funds through their employment. (Adolphe et al., 2019; Blum and Grant, 2022; Brooks & Blaszczynski, 2011; Turner et al., 2009).

Some researchers have described particular subtypes of gamblers with a history of illegal behaviour such as those characterised by high levels of impulsivity (e.g. Mestre-Bach et al., 2018), those who commit violent crimes more than expected (e.g. Roberts et al., 2016), and those with very long histories of offending, a lack of remorse, and general deceitfulness whose behaviour may be better explained by anti-social personality disorder (Blum and Grant, 2020).

However, the criminal behaviour of those with gambling disorder who commit financially based crimes to fund gambling and pay off debts are different to these subtypes, with their criminal behaviour most often described as "out of character". They lead normal lives, with jobs and families, and they have not drawn the attention of the authorities (Smith and Simpson, 2014). This group raise questions in terms of explaining and understanding financially based crimes that may extend beyond a focus on individual traits. For example, to the process of diminished control and the shift from reward-seeking to compulsion (Blum & Grant, 2017), and to the material role of the gambling operators (e.g., Dow Schull, 2012).

Some have argued that the courts overly depend on the medical model of gambling disorder, which sees it as primarily caused by a dysfunction within the individual. The gambling operators and their allies have robustly supported this position, which has meant that the courts do not consider the role of gambling providers and governments (Hing, 2002). Examining a broader range of determinants for financially based crimes related to gambling disorder may have implications for how the criminal justice system responds to these cases.

The present work will focus on those who commit financially based crimes and will examine to what extent gambling disorder and crime may be better explained by the transaction between these individuals and modern commercial gambling influences.

Commercial Influences

The UK government liberalised its gambling laws in 2005, and it now has one of the largest gambling markets in the world (OHID evidence review, 2023). There are 2500 operators licensed by the Gambling Commission, and the gross gambling yield of the industry was over £14bn in the year to March 2022 (Gambling Commission, 2022). The commercial environment is subject to laws and is regulated by the Gambling Commission in Britain. One of their stated objectives is to 'prevent gambling from being a source of crime or disorder, being associated with crime or being used to support crime.' (Cited in Meirs, 2006, p473).

The industry is dominated by global corporations, who have invested heavily in sophisticated addictive products and marketing strategies to recruit and retain new generations of gamblers, aided by light touch regulation (Van Schalkwyk et al, 2023). Dow Schull (2012) has described this as 'addiction by design', which is supported by data that 60% of profits are estimated to come from 5% of customers who are categorised as 'problem gamblers' or 'at risk' (House of Lords Select Committee, 2020).

A qualitative study of treatment and non-treatment seeking gamblers by Hing et al (2022) reflects the risks of online gambling, with the synergy of addictive products, a continuous use platform, and marketing. They described themes relating to the increased speed and ease of online gambling, enabling instant access from anywhere at any time which increased participants gambling opportunities. Participants also highlighted the continued proliferation of advertising and inducements for online gambling, including through targeted push marketing. They described how and why this fostered their increased gambling, impulsive gambling,

persistence, and loss-chasing (i.e., increasing stakes in the hope of a redemptive win).

Several review papers (e.g., Parke & Griffiths, 2007; Schottler Consulting, 2019) and experimental trials (e.g., see Barton et al., 2017 for a review) have described the structural characteristics of gambling products responsible for excessive play, irrespective of the consumer's psychological or social functioning. Many have focused on the slot machine (or electronic gambling machine) as it is particularly associated with harm, crime, and contains an array of structural characteristics, such as alluring sounds, speed of play, intermittent reinforcement, and stake size. The speed of play diminishes the ability to reflect, and the immersive effects of the slot machine can deliver a mindless, distraction-free, dissociative state called "the zone" (Dow Schull, 2012; Livingstone, 2005). Some argue the characteristics are more important than the product itself (e.g., Griffiths & Auer, 2013), and the work on structural characteristics has now extended to other products (e.g., Newall et al., 2022). There is a consistent positive and significant relationship between continuous casino type products and crime rates, especially income-generating crime rates, at the local level (Wheeler et al., 2011). This suggests that where slot machine gambling is most concentrated, geographically, more people are driven towards the types of offending that this study focuses on.

In addition to addictive products researchers have also focused on marketing and loyalty programmes, and their ability to foster excessive gambling, which can be targeted and gain additional reach with online technology. Delfabbro and King (2020) found a consistent positive association between loyalty card use and higher risk gambling in venue-based gamblers. The Productivity Commission in Australia (2010) found that 2.6% of a casino's loyalty programme membership generated 76% of its revenue. In the UK the regulator, the Gambling Commission, produced a non-public report, obtained by The Guardian (Davies, 2020), on loyalty or VIP schemes. It showed that one major operator took 83% of all of its deposits from just a 2% share of its customers. That 2% represented a collection of VIP players, who were all depositing high amounts. In addition, the report states that 7 out of 10 regulatory penalties handed out to operators by the Commission were due to their VIP schemes. These penalties were marked as being a failure to prevent gambling addiction. Smith and Simpson (2014, p2) conclude, "EGM design and loyalty programs produce players who consistently wager more than intended". These findings are important as they reflect the active role of the operators in excessive gambling, unaffordable losses, and regulatory failures, and may provide a greater context for both understanding financially based crimes as well as providing the judiciary with a more comprehensive understanding of the factors responsible for such offences.

Research on gambling marketing has also shown that marketing leads to unplanned gambling spend and can adversely impact those who experience gambling problems (e.g., Wardle et al, 2022). A qualitative study of gamblers found that male participants felt 'bombarded' and 'targeted' by sports bet marketing. In addition, moderate and high-risk gamblers were particularly influenced by incentivisation to gambling (Thomas et al., 2012). A recent report showed that 35% of daily marketing is targeted

at those experiencing gambling disorder, significantly more than any group (Gambling Commission, 2022). These findings suggest a pattern of behaviour by gambling operators to accelerate financial losses.

Gambling disorder is a process, and evidence suggests that the modern commercial gambling industry can use marketing and loyalty programmes to prompt, aid and abet this process, rather than use this data to protect customers. Smith and Simpson (2014) argue that these are the circumstances whereby financial resources are exhausted, and a line is crossed into financially based crimes.

Addiction, responsibility and mitigation

There is consensus that those with a gambling disorder who commit financially based crime must bear responsibility for their actions (e.g., Morse, 2013; Blum & Grant, 2017, Blum & Grant, 2022), and invariably gamblers plead guilty in a court of law for offences related to gambling. The law is concerned with the person as an acting agent who has acted for reasons, and as far as the law is concerned "addiction does not sufficiently undermine either cognitive or control capacities to excuse the addict for other crimes, and virtually all addicts can be held responsible for not taking the steps to prevent them from engaging in addiction-related crime" (Morse, 2013, p499).

Amongst clinicians and neuroscientists there is ambivalence as to the extent of impairment to inhibitory control and whether addicted people could be said to have no control over their behaviour (see Carter et al., 2014). While gamblers meet the *prima facie* threshold for criminal responsibility, as they are deemed to act for intelligible reasons, there may be arguments to be made for the law to excuse an offender or provide mitigation on a case-by-case basis. The argument advanced is that an exceedingly strong state of craving and desire, at least at certain times, can impair a defendant's rationality or subjectively experienced volition:

"Courts can determine on a case-by-case basis whether an individual offender with a behavioural addiction meets criteria for legal responsibility. In other words, some people with behavioural addictions deserve excuse or mitigation because concrete behavioural information shows that they lack sufficient rational or control capacities, not because they have a gambling disorder, per se" (Blum & Grant, 2017, p470).

It certainly seems the case that gamblers brought before the courts face significant challenges. Brooks and Blaszczynski (2011) reviewed seventy court of appeal cases in England and Wales that involved harmful gambling and the contribution of gambling debts in financially based crimes. They found that all accused in these cases were found accountable for their crimes. They concluded "the judicial system does not recognise or accept the condition as an acceptable defence or mitigating factors to be taken into account in imposing penalties" (Brooks and Blaszczynski, 2011, p90). However, Blum & Grant (2017) and Smith and Simpson (2014) provide more hope in the sense that they provide accounts where the courts granted more lenient sentences, accepting that defendants were sufficiently impaired by their gambling disorder.

Taken together, the literature presented argues that there is a case to explore the testimonies of gamblers who have been subjected to the criminal justice system due to financially based crimes. The literature has focused on quantitative data and there is a dearth of personal stories and qualitative evidence. These stories could shed light on a broader understanding of the unfolding nature of a gambling addiction and the nature of any impairment of volition, as well as the role of gambling operators' products and practices, and limited laws and regulation. This, in turn, may have implications for how gamblers are dealt with by the criminal justice system and contribute to future reform to prevent crime.

Research Aims

This research aims to do the following:

- Using the experiences of those who have had a gambling addiction to explore the features which may have contributed to impaired control of, and responsibility for, financially based crimes.
- To explore perceptions of the role of commercial products and practices, the regulatory framework, gambling disorder, and financially based crimes
- To explore the implications for reform to reduce gambling related criminal activity and reform of the criminal justice system to offer a more effective response

Method

Sample

Due to the aims and objectives of the research and the 'hard to reach' nature of the sample, a purposive sampling method was used. Finding such a 'niche' group of people re-settled in the community is not a straightforward exercise. A sample of 13 adults were recruited through the professional networks of the author, as well as through snowball sampling as members of the professional network provided names of potential recruits who also met the criteria.

The sample met the following criteria:

- Have had a gambling disorder (and now be recovered of at least 12 months duration)

- Have previously been charged or sentenced for gambling related financial crime(s)

- Have completed their sentence and now reside in the community

- Have no history of criminal behaviour prior to the onset of a gambling disorder

- Be over the age of 18 at the time of interview

Ten of the sample identified as male and three identified as female. All were of 'White British' ethnicity, except one who was white (other). The sample size was determined when data saturation was deemed to have been met i.e., the point by which no new information or patterns were discovered (Green and Thorogood, 2018). All were charged or convicted of theft, embezzlement, and/or fraud.

The interviews took place online due to COVID-19 restrictions and were conducted in February 2021. Ethical approval was sought and gained prior to data collection from the NTU Research Ethics Committee.

Procedure

Participants were contacted via email and given an information sheet (see appendix 2) about the research and invited to schedule an online interview. Signed, written and vocal consent was obtained prior to the interviews, which were conducted by the author via Microsoft Teams and audio recorded and transcribed by the same platform. Recordings were kept securely on the university drive and the transcription was anonymised and stored on a password protected computer. Interview length was between 50 and 90 minutes. Participants were assigned a pseudonym to provide anonymity. The consent form can be found in Appendix 3. Following the interview, a debrief sheet was sent to participants (appendix 4).

Interview

A semi-structured interview guide was developed to explore the experiences of the process of the addiction and how it affected them, experiences of committing the crimes, and their experiences of commercial influences. This method was chosen for two important reasons 1) it allowed the author to use his knowledge and expertise in the shaping of questions and 2) it afforded participants the opportunity to respond to very open-ended questions (and prompts from the author) to fully explore their experiences. The semi-structured interview is to be found in Appendix 1. When conducting these interviews, the author adhered flexibly to the interview agenda to ensure each of these key topics were addressed. However, discussions were often guided by what the author interpreted to be meaningful to the participant and would often move in and out of these different topics.

Analysis

Reflexive Thematic Analysis (Braun and Clarke, 2006; 2012; 2019) was chosen as a highly appropriate method for this study as the research aims were addressed within a paradigm framework of interpretivism and constructivism. Adopting a constructivist epistemology was deemed appropriate in that it was not only recurrence of data that could be used for theme development, but also it meant the author could use their knowledge and expertise to interpret meaning and meaningfulness in participants responses as the central criteria in the coding process i.e., the expression of what was most salient or important to them. It would allow the author to ensure qualitative data was collected and analysed in a manner that respected and expressed the subjectivity of participants' stories, while also acknowledging and involving the reflexive influence of the interpretations of the author (Byrne, 2022).

The reflexive approach to TA highlights the researcher's active role in knowledge production (Braun and Clarke 2019). RTA is about "the researcher's reflective and thoughtful engagement with their data and their reflexive and thoughtful engagement with the analytic process" (Braun and Clarke 2019, p. 594). This approach enabled the generation of themes which were underpinned by a central concept, and in doing so telling the reader a story. This being a story that could not been told without analysing the data in this way.

The analysis followed the Braun and Clarke (2006; 2019a; Clarke & Braun, 2013) six-phase process for conducting a generic Thematic Analysis (TA). Reflexivity was adopted as the important element added since the original Braun and Clarke writings, as the author used critical self-awareness (i.e., documenting the author's thoughts and feelings regarding the data and the analysis) in the process of engaging with the data and the production of knowledge (Braun and Clarke, 2019). The phases were not necessarily followed in a linear fashion, and at different stages the author moved back and forth as necessary. This allowed for new interpretations of the data to be made. The approach to coding taken was not to achieve coding reliability but to follow a recursive, iterative, flexible, organic, and emergent coding process (Braun and Clarke, 2019). The six phases were used as a *tool* to guide the author in systematically and robustly exploring, interpreting, and reporting a pattern-based analysis from the dataset and research questions. These are the steps followed, with a description of how it related to the study:

Step 1: **Become familiar with the data** – The researcher began by watching and actively listening to each recording, prior to attending to the transcripts. No notes were taken just yet. This afforded the opportunity to develop an understanding of the areas addressed in each interview, as well as gestures, mannerisms, pauses, areas of emphasis etc that would not be included in the generated transcriptions. After this 'active listening' stage, the author re-listened to each interview while correcting the generated transcriptions by Microsoft Teams. This time-consuming process also enabled a deeper immersion into the dataset. The transcriptions were then read and re-read numerous times. Early rough notes were taken, noting early observations of initial patterns in the data and highlighting interesting passages in the transcripts. At this stage the researcher's thoughts and feelings about the data and the process of analysis were also referenced, and some of these notes would be useful for the later interpretation of the finalised thematic analysis.

Step 2: **Generate initial codes** – During this phase succinct codes were generated that captured and evoked important and interesting features of the data that might be relevant in addressing the research questions. It involved working systematically through the entire dataset, with two rounds of coding, and after that, collating all the codes and all relevant data extracts, together for later stages of analysis. Equal consideration was given to each data item. The initial iteration of coding was done by assigning codes in the margin of each page, while highlighting the text relating to each assigned code. All items that could be related to answering the research question were coded. The evolution of codes and prospective themes was tracked in a manually written log, which aided the recursive process of theme generation and

interpretation of data (Braun and Clarke, 2014). Subsequent iterations of coding were added to this log.

Step 3**: Search for themes** – After all relevant data items were coded, this stage focused on the aggregated meaning and meaningfulness across the dataset. A review and analysis were conducted to combine codes according to shared meanings so they could form themes and subthemes. Multiple codes that had shared meanings were collapsed into a single code. The author was actively involved in the interpretation of codes and construction of themes that communicated something meaningful in answering the research questions. Generated themes were distinct but taken together attempted to reveal a coherent story from the data.

Step 4: **Review themes** – At this stage it was necessary to collapse themes together, and to discard ones that were not central to the story or research questions. Different questions were reflected upon as suggested by Braun and Clarke (2012) to aid the process such as Is this a theme or just a code? Does this theme say something meaningful about the data and does it relate to the central research questions?; Are there enough data to support this theme?; Does the theme have coherence? The review process meant it became clear that the initial thematic map was too bloated to tell a coherent story, and contained themes that did not have enough data to support them. Some themes generated, while interesting on their own, were not anchored to the central research question. Again, the researcher was central to the process of reflexivity, aided as well by the process of supervision.

The researcher noted at this point how difficult it was to consider letting data, subthemes and themes go. In addition, it became clear that some of the themes reflected more the author's clinical experience of Gambling Disorder, rather than an accurate portrayal of participant's experiences. These tended to be the subthemes that lacked enough data. For example, under the theme of the experience of the addiction it contained subthemes such as family influence, tolerance, early wins, secrecy and hiding, denial, increased frequency of behaviour, cognitive change, gambling as escapism, and peer/social influence. These were clinically relevant to the development and maintenance of gambling disorder, but did not contain sufficient data to support them, nor were they central to the research question pertaining to mitigation.

Similarly, under the theme of 'experience of the design features of products' were subthemes such as schedule of reinforcement, lights, and sounds, near miss effect, stake size, and jackpot size. Again, while these reflected theoretically coherent subthemes, they reflected more the researcher's knowledge and expertise, rather than being truly representative of the participants stories. It was evident from this stage that the researcher's active participation in the production of knowledge, had to be balanced with the coherent patterned stories of participants and the central narrative relating to the research question. Several subthemes were discarded during this review, as well as collapsing themes into fewer and more coherent themes, allowing for the emergence of the finalised thematic table (Table 2 below)

Step 5: **Define and name themes** – At this stage each theme and subtheme were analysed in terms of its relationship to the dataset and the research questions.

Extracts were chosen based on how they provided compelling accounts of each subtheme, how they connected to the theme, and that they also contributed to the narrative arc of the story and research questions. The researcher observed that there were many data extracts suitable for each theme and subtheme. This reflected that the themes and subthemes had successfully captured the experiences of participants, however they needed to be subjected to a significant review and edit. The researcher noted that it was a difficult task to discard extracts that contributed to the theme or subtheme. However, by focusing on the method the most compelling and illustrative extracts emerged in the end. Themes were also subjected to a final review, ensuring they were catchy, informative, and concise, as Braun and Clarke (2013, 2014, 2020) encouraged. For example, 'regulation breaches' became 'regulation disregarded by operators', 'VIP schemes' became 'Being a VIP made everything worse', and 'Marketing' became 'Marketing maintained the addiction.' These examples illustrate a shift from merely reflecting a theme, to ensuring the subtheme was anchored to the narrative arc of the participants stories and better reflected the research questions.

Step 6: **Write-up** – This phase reflects the recursive nature of the whole method. The write up started before the thematic analysis had been completed, so there was a constant back and forth. Changes continued to the end. For example, the order of the themes was amended late on. The theme of 'Industry Influence' was moved ahead of 'Experiences of 'Crime'. This allowed for a more coherent narrative of the influences on the addiction process and the committing of crimes, as well as providing a more coherent narrative of potential mitigating factors. Informal notes and memos were used to record changes, and a manual research journal was kept documenting the whole process of refinement and reflection. Finally, the themes are written into the wider report.

Results and Analysis

Four themes were identified relating to participants' experiences of financially based crimes to fund a gambling addiction. Subthemes also emerged within each theme (as outlined in table 2). The first theme, "gambling disorder as mitigation", captures their experiences of addiction, and how this altered their thinking and behaviour, and constrained choices. The second theme, "industry influence" describes their experiences with commercial influences and the impact on their behaviour, making the case for a causal chain that extends beyond the vulnerability of individuals to the material contribution of gambling operators. The third theme "experiences of crime", describes their reflections on the crimes as they were carried out, and the context within which they happened. The fourth theme, 'experiences of the criminal justice system' describes what, if mitigation was a common feature of gambling-related financial crimes, the system could learn from these participants' experiences.

The results section below takes an analytical approach to reporting the data. It deviates from the typical convention of reporting results in one section and the analysis, synthesising, and contextualising of results in a discussion section, as Braun and Clarke (2013) recommend.

Firstly, Table 1 (below) summarises the themes and descriptions:

Table 1: Description of Themes

Theme and Subthemes	Sample Quotes
Gambling Disorder as Mitigation Subthemes: Gambling as a Compulsion Capturing thought and attention Personality Change Feeling Suicidal	"You know, it just carried on. I was incapable of stopping. I just didn't feel capable of not doing it for some reason. I felt like I was possessed." (Luke) "I know deep down I know if I got to the point where I was level and paid everyone back. I know I would have carried on gambling. That's the thing I know I would have carried on I didn't have the capacity to stop." (Tom)
Industry Influence Subthemes: A casino in your pocket Dangerous Products and Environments Marketing maintains the Addiction Being a VIP made Everything Worse Laws and Regulation disregarded by Operators	"they graded how much I was losing. They knew exactly what I was, when I needed the free bets. How to get me back." (Charlie) "When I was gambling heavily, part of VIP scheme I staked, and I know the money is, you know, completely, completely relevant to each person. But I staked £19.9 million across all three accounts. But I was never asked once where their money is coming from or asked to prove their source of funds. Not once." (Luke)
Experiences of Crime Subthemes: Of Good Character Financial Resources Exhausted Opportunity & getting away with it I'll Pay it Back Not funding a lifestyle Conscience Rises and Falls	"I saw an opportunity. I was losing a lot of money. They won't see it. It won't cause the business any problems. You make excuses. I saw an opportunity." (Sarah) "You know that you shouldn't be doing it. But you don't care. You don't care about anything other than that getting what you need to have your addiction really." (Sally)
Experiences of The Criminal Justice System Subthemes: Lack of Awareness Changes to the Criminal Justice System	"So just don't be ignorant to it, it's the same. It's the same as somebody with an alcohol and drug problem. It's exactly the same. Don't be ignorant and try and understand it a little bit more." (John) "So why would you put somebody in a prison and it's also why would you do that when you could actually put them into a treatment centre that would enhance them into having the care that I had on the NHS. This isn't a person that's gonna kill somebody, it's a person who's dealing with something mentally." (Paul).

1. Gambling Disorder as Mitigation

This theme reflects experiences of the process of addiction, and how it changed participants' thinking and behaviour to a significant extent. These themes could have implications for mitigation for individuals if the courts could better understand how gambling disorder constrains choices and impairs volition.

1.1 Gambling as a compulsion

This subtheme embodies arguably the central debate in the process of addiction. Is addiction a choice or a compulsion? Or is it both? Accounts of addiction often describe the transition from conscious, deliberate processing to compulsive, habitual, automatic responding in greater control over behaviour, particularly at the point of peak craving.

Sarah described her behaviour in strong compulsion-like terms, as though her very being had been taken over by an external force,

> "You know, it just carried on. I was incapable of stopping. I just didn't feel capable of not doing it for some reason. I felt like I was possessed."

Sarah is describing persistence of the behaviour, and a lack of self-efficacy to stop it. As with the strong subjective sense of compulsion she is describing persistence against the will. From her perspective she was unable to stop or control the behaviour.

Similarly, Tom refers to his behaviour as more compulsion-like,

> "It's crazy to carry on doing something so……something that's just not enjoyable in any way, shape or form and in that respect, I don't feel there was a choice for me, I really don't."

Here, Tom is describing another common feature of addiction. It persists even when the gambler has lost pleasure and enjoyment for the behaviour. Berridge, Robinson and Aldridge (2009) described this loss of 'liking' the behaviour over time, meanwhile there is a corresponding development in 'wanting' the behaviour, and these are reflected in different neural substrates. This model of 'irrational wanting', known as incentive salience, is weighted in Pavlovian stimulus-driven motivated automatic approach behaviour, rather than any cognitive-driven 'wanting', and helps to explain the persistence of behaviour even when the person doesn't feel like they want to do it. This may have implications for mitigation in terms of a weighting towards automatic cue-triggered behaviour when the reward is available.

Gary states how something had been put in him, akin to a disease, and how he'd never experienced a force like it,

> "It was an uncontrollable desire that I put in front of everything. I described it as a disease. I just want it out of my blood, why has God given me this disease? I cried in a pillow and said like why are you

giving me this disease. It was just such a draw I can't describe the draw it had on me, the pull. Nothing had that pull."

Many people with addictions describe their experience as a disease, and there are proponents of this as an explanation of addiction, aided by the revolution in neuroscience and biomedical research in North America (Leshner, 2001; Volkov, 2005). However, there are many opponents of this view, and they refer to how it does not give enough attention to volitional goal-directed behaviour, commercial determinants, and is "reductively inattentive to individual values and social context" (Courtwright 2010, p144). In terms of mitigation, the distinction is important, but even those with the 'non-disease' belief would still acknowledge that at the point of peak-craving and availability of the behaviour, resisting is extremely difficult and so could still have implications for mitigation.

Sally describes her behaviour in terms of automaticity,

> "I would be doing it on my phone while I was at work. Or I'd do it in the background while working and still have the tab open on the computer at work, which was absolutely ridiculous, but I'd still be doing it. I would do it while driving, you know, like it'll be there on the dash while driving. I didn't think about it, it was just like an automatic reaction."

Sally might be referring to a process of automatic decision-making, which makes sense as it would be too burdensome to deliberatively reason through every decision we make. While some may see this as reflective of pathology, behaviour generally becomes more automatic with practice (e.g., when eating), and this frees up our limited cognitive resources (Lewis, 2018). Again, the process of gambling behaviour involving automatic decision-making has implications for mitigation if it constrains the ability to reflect and think through decisions.

Participants seem to describe that when the behaviour is available and accessible, there was a greater weighting of habitual, automatic decision-making and behaviour. This could have implications for mitigation. The question of whether it is truly compulsive in the 'strong' sense that the behaviour is impossible to resist when available, or just very difficult to resist (the 'weak' sense) at the point of peak-craving, is debated. Most contemporary accounts of addiction in psychology, prefer the latter explanation (e.g., Heather, 2017; Perales et al., 2020), as addictive behaviours are responsive to incentives, suggesting that the desire to gamble is not irresistible. There is little doubt there is some kind of 'tug of war' between conscious, long-term goal-directed behaviour and immediately available rewards which are more subject to stimulus-driven, stereotyped, automatic control. Dual-systems perspectives on addiction attempt to reconcile the debate by integrating both systems into a theory of addiction (e.g., McClure and Bickel, 2014).

A key component of the process of addiction and the subjective experience of compulsion is the 'capturing' of thought and attention, and this was a theme that was discovered in the data.

1.2 Capturing thought and attention

This subtheme captures common features of addiction. Namely that the behaviour focuses one's thinking (e.g., planning, imagining, looking back), and that the behaviour prolongs and narrows temporal attention to immediate visceral needs at the expense of long-term goals (Lewis, 2018). In doing so it takes priority over other responsibilities, which lose their previously held appeal. The argument is that this does not absolve a gambler from responsibility for a crime (Morse, 2013), but it could support mitigation and a more compassionate response by the courts, as the mind is clearly altered in ways that favour the persistence of gambling behaviour.

Oliver reflects on the preoccupation of thought,

> "I lived and breathed it from the time I open my eyes in the morning till I went to sleep, I lived and breathed it. It was my first thought of the day. It was my last thought of the day."

This seems to illustrate the role of conscious processing within the prefrontal area, albeit with constrained impulse control. It would involve looking ahead, planning what to do, what to bet on, how to get the money, how to create the opportunity, how to hide it. Following play, it might involve looking back with regret over the gambling episode, contemplating how to recover losses the next time. Oliver's example nicely illustrates the way gambling disorder can capture both thought and attention as the pursuit of gambling related rewards take precedent over any competing responsibilities or future desired goals (Lewis, 2018).

Scott expresses how he was always thinking about it,

> "It's something you feel you want to be doing all the time. And if you're not doing it, you're thinking about doing it. You're working out when you'll next get the chance."

Scott's example seems to illustrate that while there is less of a need to think when in play, gambling takes up cognitive resources when not in play in order to continue to pursue the goal of gambling.

Karen reveals how gambling would dominate the day,

> "I gambled first thing in the morning. I gambled during my lunch break. Straight out, straight to the shops. I would actually phone the shops and ask them to keep certain machines for me and they did a lot of that because I was such a hard playing customer. Uh, and then once I left work around 340pm, I'd go back to the machines and only get home at about 8 or 9 o'clock at night."

This extract shows the lengths the person will go to organise the day to maximise being in the action at every opportunity. Even ensuring that 'favourite' machines are held to ensure there are no obstacles in the way.

Luke describes how gambling went wherever he was, and how it would take priority over his family, his work, and his own safety,

"So, I would have been waking up early morning. I don't know. Let's say 7 o'clock, go into the ensuite with my phone playing roulette before going to work. I'm then probably even playing on the way to work, so spins would have been going while I was driving, as irresponsible as that sounds, that's probably what was happening. And when I was at work, in between meetings, I would probably have been either on a slot machine or roulette machine, and I'd have been working late sitting on my desk, playing on my phone. And if I was coming home earlier, I'd be upstairs in the study telling my wife I was working. But the reality was I was on my phone, gambling. My work really took a nosedive. I'd lost interest in everything. Like I said earlier, I was quite interested in football and sports. I never played any sports or football during that period and all of my interest was purely on gambling. That's the reality of it."

Luke describes a desensitisation to alternative (and previously enjoyed) routes of reinforcement as the gambling takes priority in terms of its ability to capture, thought, attention and behaviour. A common finding in the addiction field (e.g., Lewis, 2018). Where there is a lack of alternative rewards in a given environment, some authors argue that the behaviour is chosen because it holds value above the alternatives as part of myopic decision-making when its available (e.g. Pickard, 2018). From a mitigation perspective it is reasonable to argue how addiction constrains choices and how the pursuit of the behaviour becomes all-consuming in terms of thought and attentional focus. Dopamine activation in the attention centres of the brain is a component of the reward pathway. Repetitive interactions with gambling products and environments perpetually activate dopamine in the reward pathway and seems particularly responsive to uncertainty which is built into gambling activities (Clark et al., 2019).

Another theme, which could have implications for mitigation is the personality change of participants. They were changed by their gambling addiction, in a way that was temporary. Once these participants were in recovery their old personality and values returned.

1.3 Personality Change

This subtheme represents how participants' values and behaviour changed to such a degree, due to the addiction, that it felt like someone else was doing it. Of note their real values returned upon abstinence and recovery. This could be important from the point of view of mitigation, as it suggests that something external is responsible for overwhelming the person's typical good values and sense of right and wrong. That the gambling is the inauthentic self, replacing their authentic, honest law-abiding self.

Sally reflects that she was a good person, and this person has returned, yet the gambling addiction turned her into a different person,

"Yeah. I think for me to understand it. It's like it wasn't me. It's like an out of body experience. And it's like it's you looking at somebody else's

life. And doing things that you know are not moral. That's how I see it. This was not me. This was something else inside me. This is not who I am, but personally I am. Today is the person who I was before all this."

Orford (2020) collected experiences of different gamblers, including women, in explaining addiction and similarly includes 'personality change' within the themes he derived. Here, Sally is saying that there is something peculiar about addictive behaviours, in that the desire and motivation for the behaviour is so strong it will 'force' you to do almost anything to pursue the behaviour. Examples in gambling disorder can include lying, secrecy and stealing. What is revealing is that the person had that value-based life before gambling disorder, and it returns post-abstinence. In terms of mitigation there is the strong sense that it is the addiction that promotes this behaviour, rather than some inherent character flaw within the person.

Participants also described how it feel like they developed two personalities. For example, Mark reflected,

> "It's Jekyll and Hyde, isn't it? You've worked your socks off. You've earned really good commission and then in a couple of hours in one afternoon you've blown it. Where's the logic? There is no logic at all. And I still can't…. I still can't get my head around it."

This is reminiscent of what Orford (2020) described as 'the divided self' where those with gambling disorder draw a distinction between their gambling and their true self, seeing gambling as being almost controlled by an external force. The gambling being the less authentic self.

Paul reflects how the change would be most pronounced in a situation that would promote strong cravings,

> "There's two sides to you in your head. I think that's the only way I can explain it. There's you know you've got two sides of your brain, one that's that sensible person. Law abiding, caring person. And then this other person that gets taken over when it gets into that environment with the casino and there's no boundaries to what that person will do to facilitate what he needs to facilitate."

Mitigation is likely to count more at the point of craving and with alterations in thinking and behaviour when the behaviour is available and accessible (e.g., Morse, 2013). Paul's experience reflects the power of conditioning to gambling environments and products where cues associated with gambling trigger strong cravings & focused attention.

Alan puts his experience starkly,

> "I was just not a nice person. You know I'd sell my wife, kids, home, everything down the river to carry on. And when I look at that person, It's difficult to say where did it come from."

In this subtheme participants have described how the process and power of a gambling disorder changed their personality and behaviour. They were capable of doing things that without the disorder they wouldn't dream of doing. This includes criminal acts. Gambling Disorder changed them. Orford (2020) encountered similar stories, making these accounts important in terms of strengthening previous findings, but they are important as they are being applied to mitigation in gambling disorder cases for the first time.

Another theme which has implications for mitigation is the distress participants were in, revealed by suicidal feelings and intentions.

1.4 Feeling Suicidal

A common theme that emerged was how the ultimate escape seemed to be a realistic way out for participants. Shame seems to be a central concept here, particularly when the situation finally was coming to light. A behaviour and consequences that caused so much distress,

Sarah stated,

> "My boss called me into a meeting and they had looked. They knew what I had done. I said "I can't deal with this" and I left and I went home. It was overwhelming. I tried to kill myself. It's an understatement to say it was embarrassing."

When crimes came to light suicidal ideas happened suddenly, with accompanying acute distress. This combination, according to participants, was dangerous.

Similarly, Tom and Karen described what happened when their addiction and crimes came to light to others,

> "I had a suicide attempt when this all happened, and I was admitted to psychiatric care. I needed to be in there just because I was probably one of the highest risk people in there." (Tom)

> "I got off the bus at the station and thought I'm gonna throw myself under a train. Otherwise, I have to admit what I've done. I can't face everybody." (Karen)

Participants were not only having to admit to the addiction, but to the secrecy, lies, and criminal acts that had been committed. The probability of rejection from loved ones was not low, and the prospect of being judged as a criminal for people with no previous criminal intent may have had a significant impact on feelings of shame and suicide. Shame is a common feature in accounts of gambling suicidality (e.g., Marionneau & Nikkinen, 2022) but these accounts provide some fresh insights.

Oliver alludes to the risk of suicide when problems are recognised and the consequences on others become apparent. He also highlights the risk of suicide following a relapse,

> "I can't hurt my family anymore. It's my time to go and I can't beat this anymore. It's beat me. By now I've written suicide notes to my mother, my wife and kids. I got up the tree and just said like sort of a prayer, said goodbye to the kids." (Oliver)

Suicide seemed to present as a crossroads. Both options were painful, and there were thoughts that suicide may be less emotionally painful than facing up to what has happened,

> "Then you know I had a decision to make of either do I seek recovery, which would naturally mean probably prison because of the amount involved. Or do I decide to take my own life? Basically, that was that was on my mind because I couldn't see it the way forward at that point in time." (Luke)

Gambling Disorder and its consequences are positively associated with suicidal thoughts, plans and actions (Andreeva et al., 2022) and studies have confirmed these findings in the UK (e.g., Wardle et al, 2019; Ronzitti et al., 2017). This is evidence of a severely altered mental state and could support the case for mitigation. A behaviour associated with misery, acute distress, and suicide may lead to a more compassionate response in court, if the judiciary were more aware of the complexity of gambling disorder and how it can lead to financial crimes and mental health crisis. In some cases, it may be pertinent to ask the question when considering a prison sentence, "has this person and their loved ones suffered enough?"

2. Industry Influence

The second main theme that emerged related to the influence of commercial determinants of health (e.g., Maani et al., 2022), and the extent to which these may have had some responsibility in the development and progression of the behaviour to an addiction and to criminal behaviour. To what extent should the industry share in the accountability for such behaviour? The legislation from The Gambling Act (2005) has two relevant objectives 1) to prevent gambling from being associated with crime and 2) to protect vulnerable people from being harmed or exploited by gambling.

Participants had a lot to say about the environments they gambled in, the addictive nature of products, and the marketing and personalised reward schemes they received that served to influence and accelerate their behaviour. The argument presented here, with supporting evidence, is of the process of addiction extending beyond the vulnerability of the gambler, to the material contribution of the operators.

Providing supporting evidence in the literature for the following findings is a challenge. Much of the research worldwide on gambling is funded by the industry, which may be motivated to safeguard its interests. The problem is summarised here,

"An international gambling evidence base that is narrow in scope, often methodologically weak, and that focuses on problematising individuals while deflecting attention from harmful products, industry practices, and the effects of liberalisation has emerged." (Van Schalkwyk et al., 2021, p614).

This ought to be borne in mind when considering and evaluating these findings:

2.1 A Casino in your pocket

This subtheme relates to the vehicle of online gambling, and its ability to increase accessibility and available of gambling, as well as to motivate gambling at high frequency, where few barriers and friction exist. The increased risk associated with online gambling has been established (e.g., Griffiths and Barnes, 2007). These extracts describe how online gambling means you can gamble wherever you go. Gambling goes with you, and not without risk in terms of addiction or other personal consequences, as Scott outlines,

> "That was where it really started to take a bit of hold, once I got that online account."

Scott symbolises the structural and situational changes from land-based to online gambling. His gambling accelerated significantly when he had so much immediate access to addictive products.

Participants referred to how gambling had transitioned out of traditional locations and was now always with you. Charlie states,

> "I usually get up at 6. Stick the kettle on and have my first bet in the shower. I just put the phone up on the windowsill so I can see if it came in. Then I go to work. I was literally gambling all the time" (Charlie)

Sally refers to the solitary nature of modern commercial gambling, and how this affords wider access and opportunity,

> "It would be solitary I'd be doing gambling on either my laptop or my phone, or and then as it progressed worse and I'd do it at work, I'd do it wherever I could really and obviously technology had advanced. It was in your hand whenever you wanted it."

These extracts suggest that online gambling increased the frequency and intensity of gambling, which otherwise may not have been the case. In this scenario, unlike with alcohol or drugs, gambling can be consumed 24/7 as long as money permits. By the industry making gambling available online it has increased the risks, reflected in these accounts. It also moves gambling from a social activity to a solitary one, where it can be hidden and not physically monitored.

In addition to gambling wherever you are, Gary highlighted that online environments offer a huge array of gambling opportunities across different activities, meaning you can gamble intensively across products,

> "You can do multiple things online. I could have a wheel spinning there, a card deck going there, and the race is on there, with the football on my TV. It was great. It was that same picture that I had in them shops. But on my own. You know it was, it was dangerous."

The greater the temporal distance between placing the bet and getting the outcome the lower the risk (Griffiths & Auer, 2013). These extracts show that online gambling meant the opportunity to bet on multiple activities and to have results coming in at pace, continuously.

Scott also added an additional risk. By gambling online money no longer felt like it had the same value, affecting decision making:

> "I spent my life in front of a laptop tapping away so you know little couple of clicks on a mouse and a tap and you'd put a bet on and it was out of your account but you didn't notice it 'cause it wasn't laying out notes from your pocket. It just became numbers on a screen. It wasn't like it was real money."

Cashless gaming can induce what Parke & Griffiths (2007) refer to as the 'suspension of judgement', a structural characteristic which disrupts the gambler's financial value system and potentially stimulates further gambling (Griffiths 1993).

These extracts show that online gambling meant open access in the home, on the go, and at work. Available and accessible 24 hours a day, typically played in isolation, which carries additional risks (Dow Schull, 2012). This contrasts with traditional bricks and mortar gambling with restricted opening hours, and supervision of play. In addition, numerous markets are available, increasing the products available to be bet on in a continuous fashion at high frequency. Participants also referred to how there was a suspension of judgment when it came to losing money – it didn't 'feel' like handing over your own money. Few regulations currently exist online e.g., there are no mandatory limits to stakes, deposits, losses, or time. Taken in combination the risks of online gambling, as the experiences of these participants testifies, significantly influenced their behaviour and accelerated the harms.

Online gambling is a platform or type of location where gambling takes place, but what about the products themselves? These will be discussed within the following sub-theme.

2.2 Dangerous Products & Environments

This subtheme represents participants interactions with their products of choice and which design features they found particularly attractive and motivating. It was clear that the rapid, continuous products and betting were the ones they found most engaging, and most harmful. Structural characteristics (i.e., design features) of products are associated with motivating gambling, even while you lose (e.g., Yucel et al., 2018).

Tom epitomised this,

> "People talk about speed of play, but you know, for a compulsive gambler, that's what keeps them interested. You know, if I've gotta wait another 5 minutes to, that's why I never went to real casinos. I'd be like Jesus Christ spin the bloody wheel you know."

Those with gambling problems tend to play the most rapid products, to increase the rate of reinforcement. Making such rapid products available, with relatively few regulations in place, and making them available online, raises the prospect of significant commercial influence over behaviour. The product most associated with harm is the slot machine (Delfabbro et al, 2020), these days widely available online. Scott reflected on a turning point in his gambling,

> "I started playing casino games online. And that was the key. For me it really started escalating when I got onto the games."

The slot game has the largest number of structural characteristics designed within it (see Parke & Griffiths, 2007). Rapid, continuous, and played in isolation. In addition, traditional football betting has changed from betting in advance on the outcome of a future game to a 'live' continuous format, with multiple opportunities to bet and the risk of loss chasing. For example, at one time you could make your selections using the football pools during the week, in advance of the games at the weekend. Modern football betting includes features akin to a slot machine, where you are live in the action, betting at a higher, more continuous frequency. A more potent experience, where the ability to stop and reflect are reduced.

Charlie recalled,

> "I think it was always so instant with in-play. You know you could win 6,7,8 times in a game. And if you just pick your team to win or lose, you've got to wait the 90 minutes. But this was like you're so involved in it,"

Charlie is referring to the large number of betting opportunities within a football game (e.g., the next corner, yellow card, free kick, goal etc). Speed of play and immediate reinforcement also meant a range of activities could be engaged in to maintain high frequency, continuous gambling. As Tom stated,

> "I would watch it because it would just be one after the other after the other and then, while that was happening I'd be playing roulette on the other machine because maybe I wasn't just physically doing something I needed to press a button or it was all the speed of play for me and the near misses when I was gambling on the machines was a big, big thing. I needed to just, I need to have as many things going in that time period. That's what I needed, you know, regardless of the result."

Charlie is referring not just to an individual product, but to a commercial environment organised for rapid, continuous betting across a range of activities.

Scott outlined that the preference for speed and reinforcement also meant ever increasing losses and harm, with a reduced ability to reflect:

> "the biggest difference there was that if you only use casino games you're getting a result every few seconds. And you know, you're not having to wait around for the next race, to wait around for the result to pop up on screen and then look around at your next bet and maybe study it a bit. It's just bang, bang, bang, bang. It's relentless and you can lose a lot of money very quickly."

These extracts tell a story of the modern commercial gambling industry. Making a whole array of rapid, continuous products available across their environments, where laws and regulations have lagged, and enforcement by the regulator has been modest. In addition, there are so many different sports and casino products available that a player can switch between activities, making bets at high frequency across products, something that has drawn little attention in the literature.

The experience of online gambling has also mean that operators can gain easy access to you via marketing. This is something that participants commonly referred to and will now be discussed.

2.3 Marketing maintains the addiction

Participants shared a common experience of receiving enticing marketing that served to motivate and increase their gambling, even when they were attempting to cut back and stop their gambling. They reported that, opening online accounts meant they could be accessed at will. Rather than recognising the excessive nature of gambling (as each transaction is tracked) and protecting consumers, participants described the opposite practice – they were seen as 'high value' customers, where further losses could be extracted.

Charlie referred to the size of the 'free' bets placed into his account, and the relationship between these, his crimes, and excessive gambling,

> "You can have a look at the three or four days before I stole money. You know it's a free bet, a large free bet put into my account before then. The biggest was £5000 quite often they would do match deposits up to like £1000, so I'd deposit a thousand, we would give you £1000. Quite honestly if I hadn't bet for 8 hours, something would be given free. They knew exactly what they were doing."

The amounts are high and seem to be calculated to motivate the player, in the knowledge that it would lead to intense gambling and increased losses. Charlie is also making an interesting observation, that marketing played a role in the commissioning of his crimes. These 'free bets' meant that he put significantly more of his own money in to 'match' them, lost that money, and would then chase his losses in the hope of a redemptive win, losing more and becoming desperate.

To participants this marketing appeared to be deliberate to times when they would get paid, or times when they would wish to stop gambling.

Gary reported,

> "They just they knew what they were doing, and they knew how to get me going. Like on a Friday, my day off, that's when I get my free bets. So that was the start of my Friday, Saturday of pure binge gambling."

This suggests that data and algorithms are used to target those who were losing money, to accelerate those losses. The risks associated tend to focus on individual vulnerability, yet here we have the clear influence of commercial factors on the intensity of gambling.

Charlie later became aware, when he received his gambling transaction data that the companies were grading him on how much he was losing in order to focus on him and market to him,

> "they graded how much I was losing. They knew exactly what I was, when I needed the free bets. How to get me back."

Even now, well into recovery, participants reported that it was very difficult to escape the marketing,

> "I still get emails. My spam folder is full of them. I still get text messages from them. They say "No GAMSTOP" so they know you have a problem and they know you have downloaded something to try and stop yourself. So, they are relentless. They know what they are doing. They know when it is payday or the weekend. I think they are evil." (Sarah)

Participants described the role that marketing played in stimulating and intensifying their gambling, and how this was deliberate and targeted to them as revenue generating customers. Studies have shown that those experiencing problems with gambling are particularly incentivised by marketing (e.g. Thomas et al., 2012; Guillou-Landreat et al., 2021). A recent UK report showed that 35% of daily marketing is targeted at those experiencing gambling disorder, significantly more than any group (Gambling Commission, 2022). Marketing is designed to increase the frequency and duration of gambling sessions, and overall money deposited, and these findings support this.

Participants also mapped their marketing to the occasions they committed a crime. The accompanying acceleration in gambling and losses meant they were desperate to claw money back. Even when they wanted to move away from an operator or gambling, marketing would be targeted to lure them back. These findings again suggest that moving beyond a focus on the individual to the material contribution of operators could be instructive within court proceedings. These findings also draw attention to the potential disregard of laws and regulations to protect those experiencing significant gambling harm.

Participants said that the worst type of marketing, from their perspective, were loyalty or VIP schemes as highlighted below.

2.4 **Being a VIP made everything worse**

A subtheme emerged of a particular type of marketing: being signed up to a VIP reward scheme for 'high value' customers. Different tactics are referred to in terms of personalised befriending by an account manager, trips, tickets to high profile sports events, hospitality, and more credit and money into accounts to motivate excessive play and losses.

> "Do you want tickets to the Olympics? Do you want front row seats to go and watch the 100-metre final? What about your family? They can afford to entice you, which is your money back into the casino to lose more, and that's how it works." (Paul)

What stands out is the high-profile nature of sporting events which would appeal to customers, and the way they would involve the whole family. This appears to have deflected from the real tactic – to incentivise further losses. Customers are likely to feel very special, a feeling they'd want to replicate, and a brand they'd want to remain loyal to, so they could repeat this experience.

In addition to the personalised rewards, participants recalled how special the relationship with the account manager made them feel. There were retrospective comments about how egregious these practices were,

> "I love my golf.. and so I'd be offered tickets to go to The Open. They say well, we put £1000 in your account so it's like, if you can't do that then we'll give you some money.
> At the time I thought, wow, this is, you know this is great. This must mean something. You know they must care, you know, care about me. I'm gonna gamble a bit more with these 'cause they give me £1000. as I say, just grooming at the highest level. It actually progressed my gambling so much in that period by those VIP schemes and those incentives as well." (Tom)

These schemes clearly worked. It seemed to lead to brand loyalty, to feeling special, and most importantly it stimulated increased losses. However, there is very little in the existing literature base about the impact of VIP schemes.

Gary refers to how much the VIP schemes accelerated his gambling,

> "I had this interaction with this particular operator, and this particular person, VIP account manager. Then when I met this person and our relationship began, the spike in my gambling, it was astronomical, astronomical. I think from the year before it was £147,000 losses. So, the next year, £1.2 million losses. That relationship was toxic. Absolutely toxic. It did make me feel special. You think Oh my God, you're so kind to me. Oh my God, thank you thanks so much mate. It justified what I was doing. It's justified….. loyalty. I felt I had to be loyal to this company. It was vile. I was treated like a piece of meat."

At the time the VIP scheme clearly worked from the operator's perspective. Developing personal relationships appears to be central to their success. Showering

gamblers with personalised attention, and personalised gifts and incentives, seemed to contribute to them feeling special. Looking back participants were able to see these schemes for what they were and were angry.

Luke summarises the effect of the VIP schemes for him,

> "I gambled with three main operators in the UK, and I was classed as a VIP with all three. I was regularly at like high profile sporting events in the UK. And at that those events, I felt, I felt really good. You felt …you feel amazing, you know, dressed really nicely, drinking champagne, eating lovely food, watching great sporting events. You feel like $1,000,000. So naturally, you want to replicate that feeling. And if I keep going. If I keep gambling, I can keep coming to these events. So, I think for me that played a massive, massive impact and we've got, like I said, with all three operators I was in their VIP scheme and was regularly attending like events. But I saw it more as my friend was doing me a favour getting me to these events rather than it being based on me losing shed loads of money."

Participants clearly felt special and were treated like celebrities, which may have been a stark contract to their daily lives. They wanted more of this feeling, and to 'achieve' this status they had to remain loyal to the brand and bet large amounts of money. So, the addiction became more than the player and the machine, it was the player, the product, and the marketing machine.

This subtheme suggests that the VIP schemes were used to accelerate further losses from those who were already experiencing significant problems. The brand loyalty it established, the celebrity treatment, the money put in accounts, the personal relationships all seemed to combine to reinforce and accelerate gambling. This evidence suggests that they were used to taking someone from having a gambling problem to very serious levels of losses and harm. The Australia Productivity Commission (2010) shone light on how these schemes benefit the industry. They found that 2.6% of a casino's loyalty programme's membership generated 76% of its revenue. Additional evidence on loyalty programmes from Australia by Delfabbro & King (2020) showed consistent positive association between loyalty card use and higher risk gambling in land-based gamblers. At least 40% of those classed as having significant gambling problems reported loyalty card use compared with only around 10% of gamblers in general.

There is a dearth of literature, however, on VIP schemes in the U.K. This is because gambling operators do not freely share data, and much of the research in the UK is funded by the gambling industry. It is unlikely they would fund studies on the harmful impact of their VIP schemes.

Instead of protecting those customers most at risk, these schemes appear to be responsible for stimulating harmful gambling. If gamblers subject to court proceedings are members of a VIP scheme adopting the above practices, this evidence may have implications for mitigation. There is cause for some optimism though, at least in Canada:

> "Loyalty program data has been introduced more recently; augmenting mitigation arguments by outlining a culture of inducement that can abet and exploit gambler vulnerabilities" (Smith & Simpson, 2014; p4)

The arguments developing here may help to see the same happen in UK courts. The above data suggests that customers were not routinely protected against harm, as the Law says they should be. Participants had more to say about the nature of laws and regulation, and operator's compliance with them.

2.5 Laws and Regulation Disregarded by Operators

Another subtheme relating to industry practices refers to the absence of 'source of funds' checks which are meant to be in place as an anti-money laundering check, and to ensure consumers gamble within their means using their own money.

> "I was stealing and losing 30 grand a week. That's Premier League footballer money. That's £2,500,000 a year. Nobody said, "hang on a minute, this is some very big transactions coming out of this guy's account". The bank should have known, the operators should have known. If there had been an intervention earlier, I wouldn't have been able to steal anything like that much money, and I probably would have got a two-year suspended. And I probably would see my children." (Scott)

It is difficult to justify, from a player protection and regulation perspective, why there were no source of funds checks in these examples.

> "I had probably 20 online accounts. I probably did a million transactions at work, financially. And I can honestly tell you that they didn't have any interaction with me" (Charlie).

Operators are meant to intervene and have a range of interventions at their disposal (e.g., source of funds checks; restricting accounts; closing accounts). Yet to do this is against their commercial interest, unless the regulator properly enforces them. The evidence here suggests this didn't happen.

Even if a modest intervention occurred, it seemed unsuited to the gravity of the situation,

> "So, in the betting shops, which is a lot of my gambling, for me to hand over £10,000 in cash to the betting shop was quite a regular occurrence. There was never any questions, I think only once did he ever sort of come over and say hey you OK? And of course, saying that to a compulsive gambler. You know the answer, of course, is always going to be yes." (Tom)

Handing over such a large sum in cash is so unusual you would have thought this would have alerted an anti-money laundering check. In addition, Tom refers to the type of ineffective intervention which is symptomatic of structural failings in the sector.

> "I had a £300,000 facility and you could go to them and say oh can I up my facility? We've got a facility to give you of £600,000. You know, and so they're incredible numbers now. I'm sat here today thinking you know, "how is that possibly allowed to happen?" How is a casino allowed to allow somebody when they can see that this isn't going well for them not to allow them to say look, this needs to stop?" (Paul)

Paul's example argues that there was clear evidence that he was suffering from gambling harm, and yet the only intervention was to accelerate further losses.

The sums that participants wagered were enormous, making the practice of VIP schemes and lack of intervention something that participants felt very strongly about,

> "When I was gambling heavily, part of a VIP scheme, I staked, and I know the money is, you know, completely, completely relevant to each person. But I staked £19.9 million across all three accounts. But I was never asked once where their money is coming from or asked to prove their source of funds. Not once." (Luke)

Luke's story suggests that if there were no red flags on his gambling expenditure, that requesting sources of funds was incredibly rare, if done at all.

The gambling industry regulator in the UK, the Gambling Commission, has issued record fines of late for significant regulatory failures. For example, in August 2022 one of the major operators, Entain (owner of Ladbrokes and Coral), were issued with a then record £17m fine. In March 2023 another major operator, William Hill, was issued with a record £19.2m fine. In both cases the regulator cited cases where customers were allowed to spend significant sums of money with no source of funds checks or interventions with customers. This suggests that the practice of motivating significant and unaffordable losses and not intervening to protect customers is widespread practice.

Taken together the theme of industry influence makes the argument, that a key mitigating factor is the contribution of the gambling provider in prompting and then exacerbating the gambling disorder, and the lack of contribution of the regulator to protect the customer, as the law states. Mitigation could consider the extent to which the gambler in court was exploited or victimised.

The process of the addiction, the accompanying desperation, and the role of exploitative commercial practices, set a context for the commissioning of financially based crimes as is explored further in the next theme.

3.   Experiences of Crime

This theme represents participants' experiences of the offences, the circumstances, and their feelings about what they did. Offences were all financially based and occurred within the context of having access to budgets and financial accounts via their employment.

3.1 Of Good Character

These were all first offences for people who were of otherwise 'good character.' Participants had all led law-abiding lives. Several participants reflected on how they would never otherwise commit a crime. There was a clear pattern to what participants said, as is presented in the list of extracts here,

> "I always believe I'm a decent person. In fact, if I didn't have a gambling addiction. I'd never have committed a crime. I would say that in all honesty, you know what I mean." (Charlie)

> "I've never been arrested. I've never you know, stolen. I've never, really, never had that that in me." (Tom)

> "I was a person of good character. I haven't done anything else wrong in my life." (John)

> "It wasn't me doing it 'cause I never did anything like that. I was never that kind of person. I've never done anything like that. I wouldn't even take a sweet from the shop." (Sally)

> "I'm not a liar and I'm not a thief, but I am a gambler and because of that I became both." (Karen)

These findings suggest that the process of a gambling disorder, and the influences that accelerated it to such a desperate level, can have a dramatic impact on behaviour and influence people to do things they otherwise would not do. This could have implications for mitigation in court.

Tom reflects on the incredulity of the situation that someone of good character found themselves in. He is also expressing a sense of injustice,

> "You know how can I be a good person and then all of a sudden, I'm here about to go to prison? You know what on earth is going on? I don't deserve to be in prison. I'm a nice guy, I don't deserve this, and I'm sure that's happened to thousands of men like me."

The criminal behaviour of participants was consistently described as "out of character" and inconsistent with their otherwise law-abiding lives. Participants had families, jobs, and lead normal lives. They had never come to the attention of the authorities. Having no previous convictions can be a mitigating factor in court proceedings, and it also suggests that significant influences and a significant context was at play to alter the behaviour of these participants so dramatically.

There is very little in the literature about this aspect in the UK where mitigation in court has not been embedded (Brooks & Blaszczynski, 2011), although it has been found in Canadian court rooms, "Based on our experience, gambling-addicted offenders do not present as stereotypical criminals. Generally, they act embarrassed, ashamed, and contrite. We found it disheartening to see people with no criminal history or prior inclination, forfeit their finances, families, jobs, reputations, personal morality, and self-respect." (Smith and Simpson, 2014: p6).

These findings appear to be new in the UK and could have important implications for how this type of gambling-related crime is responded to by police, probation officers, and judges. They also lend weight to the argument that the location of criminal risk is not so much within the individual offender, but in the power of external commercial influences.

The next subthemes relate to the circumstances surrounding the commissioning of the offences. The first is the sense of desperation and self-preservation as financial resources become exhausted.

3.2 Financial resources exhausted

The process of the addiction, the diminished control, the exploitative practices of the industry, created a financial crisis in participants as they chased their losses to recoup the money. In such a desperate state, decision-making is altered as there is a mounting urgency for a redemptive win. Typically, participants described how they had exhausted lines of credit such as credit cards, loans, savings, and borrowing from loved ones, prior to committing crime. A state of torment emerged, with insurmountable financial problems and little hope of a resolution.

Charlie captures this here,

> "To get to the point where I stole for the first time it was literally desperation. I had run out of places to go to get money. I couldn't ask other people 'cause I've done it so many times and it was always the struggle to pay it back. And I just couldn't see any other way."

As the addiction and its consequences deepened, Tom stated how continuing to gamble seemed the only option, with hope for redemption resting on beating overwhelmingly unfavourable odds to deliver the rarest of jackpots,

> "The hole was just becoming deeper and deeper and deeper, and therefore the only way out was to gamble further because I thought that's the only way that I'm actually going to get out of this mess. So that's where all the fraud and the theft came from."

It was clear that before it got to the point of committing a crime that they had exhausted extreme levels of credit. Sally said,

> "I'd depleted all revenues of credit I'd used all my credit cards and used all my money in my account."

Similarly, Scott stated,

> "For me what led to that was the combination of desperation and self-preservation. As I say I had credit cards maxed out. I had loans here, there and everywhere that my wife didn't know about, and I was concerned about paperwork coming to the house."

These extracts provide a story of desperation, of significant financial crisis with all conventional lines of credit exhausted. A crisis hidden over a prolonged period from loved ones, and a part of the desperation was keeping this secret from the family. These circumstances meant that an overwhelming opportunity presented itself, and a line was crossed. Only Smith & Simpson (2014) in Canada seem to have uncovered similar findings surrounding the context for such offences. These are new findings in the UK.

3.3 Opportunity & getting away with it

In the context of exhausted financial resources and a well-established gambling addiction, participants were in roles where they had access to large amounts of money that wasn't their own. They had autonomy, and a perception that stealing funds would not come to light due to modest audit processes, resulting in a tempting set of circumstances.

This pattern of extracts reflects the opportunity that presented itself, and the rationalising that gave them permission to do it. Sarah said,

> "I saw an opportunity. I was losing a lot of money. They won't see it. It won't cause the business any problems. You make excuses. I saw an opportunity."

Sarah reflects the stark choice she had. She was in desperate straits financially. She had access to funds that may provide a redemptive win, and from her perspective (and those of the other participants) they seriously thought they would never be found out.

Being the only person with access to the account also seemed to matter in carrying out the offences, making it an easier line to cross, as Scott reflected,

> "You know nobody would notice it and I have sole access to the bank account. Nobody else. I could set up a payment and authorise it. Nobody looked."

The checks and balances didn't seem to be in place, which added to the temptation, as Mark observed,

> "I had a really bad accounting system and which I was allowed to manipulate."

Participants were all in desperate situations and found themselves in tempting circumstances where they could cross a line into criminality. They had access, and

they thought nobody would notice. They rationalised the behaviour, which gained strength by telling themselves they would win and return the money.

3.4 I'll Pay it Back

Participants rationalised the money taken as if they were loans to be repaid. That they could do this and put it back without anyone noticing made it not seem like a crime had occurred. This pattern was interesting in terms of how distorted and irrational participant's thinking had got. They had accumulated huge and repeated losses yet were convinced a big win was coming, that it would pay off their debts, and everyone would be none the wiser.

Gary rationalised that it wasn't criminal behaviour on his part,

> "It never felt like a crime because I always thought I could put it back."

Similarly, Oliver saw it as a form of temporary lending,

> "I'm only gonna borrow this and I'm not stealing the money. When I win this money I'm gonna put it all back."

It was notable that participants did not consider themselves to be criminals, engaging in criminal acts. Just as they may have borrowed previously from loved ones and paid the money back, a similar principle was adopted here. It also shows the severity of their distorted thinking by this stage, which served to maintain the illusion that they would get out of the financial situation they were in and walk away from their gambling disorder and back to normal life.

There were many responses like this one from Luke,

> "My thought process was I'll be able to pay this money back. It's not audited. I'll take it. I'll win and I'll be able to pay it back and no one will know."

At this stage participants had been experiencing a huge number of losses. In that sense they were myopic in their thinking, in that a strong memory bias prevented them from seeing the reality of their experience. It is common for those with a gambling disorder to recall wins and to disregard losses (Fortune and Goodie, 2012).

These accounts are consistent with other findings where cases have been studied closely, "Financial misappropriations of whichever type are rationalized as loans which will be repaid when the money is won back; hope for redemption hinges on beating overwhelmingly unfavourable odds to deliver the rarest of jackpots." (Smith & Simpson, 2014: p2).

In summary the above themes presented the circumstances whereby the crimes occurred. They were desperate, they were addicted, their financial resources had been exhausted, and they were in a very tempting situation where there was access to large funds and little to suggest to them that they would be discovered. That they

thought they would return the money perhaps shows the dramatic effect gambling addiction had had on their thinking and behaviour.

3.5 **Not funding a lifestyle**

A subtheme that emerged related to what the stolen funds were spent on. Proceeds of crime may typically be seen by the public and the criminal justice system as funding a lifestyle, to gain personal advantage by purchasing material goods. Participants, like Tom, were very clear about the purpose of the theft,

> "The only reason I was doing it is because I needed to gamble, I had to gamble."

Sally explained that every penny went on gambling, and not as many offenders are brought before the courts for stealing large amounts of money, for personal material gain,

> "I only ever took money so that I could do gambling. Never took it to go shopping. It wasn't, you know it wasn't that I bought myself luxury bling or anything like that."

Funding a lifestyle draws images of pleasure, hedonism, and euphoria. Scott stated that, on the contrary, this was due to desperation,

> "It wasn't for lifestyle, it was to chase losses to think, Oh my God, how do I get out of this situation."

To what extent this was due to the gambling disorder and the pursuit of the gambling experience, or whether, as participants outlined, it was purely to get out of a deep financial situation, is difficult to know.

John described how stealing to fund a health problem should be judged differently that financial crimes to fund a lifestyle,

> "I honestly believe that it wouldn't have mattered if I'd stole that amount of money and gone round the world sipping champagne and buying fancy cars. I would have got exactly the same prison sentence and again I've said I deserve to go to prison for my crime, but there should be some understanding of why. Why it was done. You know I shouldn't get the same as somebody who has taken money to fund a lifestyle. I don't believe. It's different, it's different."

Participants were clear that stealing due to a psychiatric disorder was different from stealing funds to pursue a lifestyle. They argue that this should lead to greater understanding and possibly leniency from the judiciary.

Stealing funds was one of the criteria for gambling disorder in DSM-IV. It seems that stealing funds, which has been seen as a key criterion for a serious psychiatric condition, and the proceedings all used to support that condition, could be viewed

more sympathetically than a criminal who funds a lifestyle to get ahead in life. Participants all had a clear, if mistaken, determination to put the money back.

The next subtheme that emerged related to how participants felt about the money they took.

3.6 **Conscience rises and falls**

A common mitigating factor is whether an offender feels a sense of responsibility and remorse for their crimes. Participants felt bad about what they did, but these feelings, at the time of commissioning the offences, seemed to be overwhelmed by the need to keep gambling.

For Charlie there was daily stress and turmoil of wondering if his crimes would come to light,

> "The effect that had on me was horrendous, going into work every day thinking is this going to be it today."

Similarly, Sarah felt a strong sense of shame to begin with, and yet this seemed to ease as feared consequences did not happen,

> "It was a massive deal in my head the first time I did it, and then there were no consequences, so it started to feel like a normal thing to do and I stopped thinking that it was a big deal."

It is interesting that the initial strong sense of conscience and shame dissipated over time, which is likely to have made it easier to commit the crimes.

Sally described a sense of dissociation to make sense of what he was doing, as well as the power of the addiction.

> "You know that you shouldn't be doing it. But you don't care. You don't care about anything other than that getting what you need to have your addiction really."

Like all participants, Sally was of good character with a strong sense of right or wrong. Yet a gambling disorder and its consequences took her to a very different place. The pursuit of the gambling experience, in the end, overrides the sense of guilt and shame. However, this is likely to be because there were no consequences for the crimes, so the sense of shame may have ebbed and flowed by the experience of consequences.

Karen also felt a strong sense of guilt during the commissioning act. However, once the money was used within a gambling episode that ebbed away,

> "I was taking the money and feeling bad that I was taking it. But then once the money is in your hands, once it's cash in your hands and it's going into a machine. It becomes unreal. It's not a real thing."

Karen's experience illustrates that the way participants thought and felt may have been different within and outside a gambling situation. Once the money was in their hands

and the craving and desire took over, then thoughts and attention focused on the gambling experience.

The above extracts are further illustrations of the distorting impact that gambling disorder had over their thinking. They felt remorse, and reported this both before, during and after crimes were committed. Yet the desperation to get out of the situation, and the pursuit of the gambling experience, took precedent at the time.

Taken together these findings revealed that people of good character can be taken to financial desperation by the power of a gambling disorder, aided by commercial influences. The context of exhausted finances, and occupying roles where large amounts of money were available within poor audit trails became too tempting to ignore. Thinking was so distorted that participants thought they would merely borrow the money and put it back following a redemptive win. As law abiding citizens there was discomfort with this experience, but the need to recoup funds took precedent. Participants were clearly not funding a lifestyle, and every penny was put back into the banks of the operators who were meant to prevent crime being used to gamble, under the law.

4 Experiences of the Criminal Justice System

The final theme that emerged were participants experiences of the criminal justice system. They made comments about the system from arrest through to the courts, prison, and the community. The pattern that emerged was a criminal system hopelessly ill-equipped to deal with gambling disorder as an addiction with equal status to an alcohol or substance use disorder i.e., as a health problem commonly capable of driving people to crimes to fund their habit and pay off debts. This is surprising given the prevalence of gambling problems amongst the prison population. For example, Smith et al. (2022) found that 28% of their UK prison sample who had gambled before they came to prison were in the moderate or problem gambling categories.

The experience of participants was that it was dealt with purely as a crime, with no awareness of the judiciary of anything other than the criminal consequences. To compound the situation there was no rehabilitation put in place at all, which, in addition to carrying out sentences, is a key priority of the prison and probation system. Taken together these extracts tell the story of a criminal justice system lacking humanity for those with gambling addiction related offences.

4.1 Lack of awareness

A clear theme that emerged from dialogue around interactions with the criminal justice was the lack of understanding, compassion, and awareness of gambling disorder as an addiction and a health problem. These seemed to span the entire system, from dealings with the police, to court, and through to prison.

Tom describes his experience of the court system,

> "I think they have this lack of willingness to try and understand or actually look further into what gambling is and they clearly know more about drugs and alcohol. And too many people just think gambling is all about money. That's all. The focus is always about 'You stole this much money'. Therefore, this is what you should, you know, this is what you deserve."

Tom's experience may reflect public opinion, which struggles to see gambling as a potential addiction. The focus seems to be on the criminal pursuit of money, rather than the psychiatric disorder underpinning it.

Karen talked of how different areas of the state take very different perspectives on gambling, with consequences,

> "The judicial system and the NHS are on two completely different wavelengths. It's not seen as an illness. And until they do that, they're not going to recognise that this addiction. You know there are people that …so many people have committed suicide. So many parents have lost children. It's so sad."

Karen describes how different public services can take very different perspectives on gambling disorder. Aligning the two could improve the chances of mitigation.

Given that the criminal justice system deals with a disproportionate number of people harmed by gambling, this is a situation in need of significant reform. Prisoners are considered to have the highest prevalence of gambling found in any population (Williams et al., 2005), and a recent study in the UK prisons found the prevalence of problem gambling was 12.1% (May-Chahal et al., 2017).

John pleads for parity of esteem with drug and alcohol related offending, where the criminal justice system has more of a balance in its thinking,

> "So just don't be ignorant to it, it's the same. It's the same as somebody with an alcohol and drug problem. It's exactly the same. Don't be ignorant and try and understand it a little bit more."

The lived experience of participants corresponds with clinical observations, and they are calling for this evidence to be used to raise awareness within the criminal justice system.

Paul reflected on the focus on punishment in the court, with no reference to seeing it as a health problem that required treatment,

> "At no point in any of the court hearings and there were a number of court hearings. At no point did anybody even remotely mention about rehabilitation." (Paul)

As Brooks & Blasczcynski (2011, p86) observed, "Judges in England and Wales work within legal guidelines that appears to take no account of problem gambling as a relevant factor in the commission of gambling related crimes."

This is potentially counter-productive, as these people will return to the places where they gambled so heavily putting abstinence at risk. Gambling addiction is known as a relapsing condition, and you are at greater risk in the presence of your typical environmental cues.

Luke described how from entry into prison all the way through to release into the community the criminal justice was ill equipped to support his gambling nor see it as a criminogenic risk factor,

> "When I entered into the prison system, the screening questionnaire, there was absolutely nothing about gambling. I spent two years in custody. Not once did anyone speak to me about gambling from the prison. And when I came out, I'm on license for two years, so I have to speak to my probation officer every month just as a check in see how I am. I've got no restrictions. But my first conversation with her, she said to me. I'm hoping to explore this conversation around gambling with you 'cause I'll be honest, we don't know nothing about it." (Luke)

If there was greater awareness of gambling addiction as a health problem and if it had parity of esteem with alcohol and drug use disorder in the mind of the criminal justice system it is likely that mitigation would play a consistent role, and those affected might receive a more humane response that balanced the need for the accused to take responsibility for their crimes, while at the same time taking into consideration compassionate mitigation and receiving support for their problems. Drugs and alcohol are screened on entry into prison, and rehabilitation programmes are commonplace, both in custody and on probation. In addition, there are drug or alcohol 'treatment requirements' whereby many offenders are diverted from custody not treatment.

Next, participants shared their expertise as to how the criminal justice could be improved because of their experiences.

4.2 Changes to the Criminal Justice System

The second theme that emerged related to ways the criminal justice system could better respond to gambling disorder and treat it as a criminogenic factor worthy of identification and rehabilitation.

For Luke these changes should begin in court,

> "It should be standard to be sent for a specific psychiatric report based on gambling because you know every behaviour is different. The Judge has to stick to Sentencing Guidelines, but they should take into account a gambling addiction."

An independent report could help judges understand the diagnosis and process of a gambling disorder and how it constrains choices and diminishes control. Gambling transaction data (specific to the addition of gambling as there is so much online gambling tracked) could be a part of such reports which could consider the synergistic effects of addictive products that are designed to mislead gamblers and induce excessive play, with marketing and loyalty programmes that appear to cultivate the maximum amount of money despite reasonable evidence of distress.

Charlie sees the need for prison diversion gambling treatment programmes and for some cases to be dealt with in the community, or if sentenced for treatment to be provided,

> "There was literally no point in send me to jail. And all it did was caused heartache for everybody close to me. And so if you're going to send me to jail for this, then you've got to help with treating me. They could have said right You've got to do 300 hours of community service."

Prison diversion schemes are common for alcohol and drug related crime, where treatment programmes become central to these mandatory orders. Successful completion of the treatment programme means that the sentence has been completed.

Paul pleads with the criminal justice system to treat gambling as a health problem,

> "So why would you put somebody in a prison and it's also why would you do that when you could actually put them into a treatment centre that would enhance them into having the care that I had on the NHS. This isn't a person that's gonna kill somebody, it's a person who's dealing with something mentally."

The focus by the criminal justice system has been on the financial crime. This study argues the need to focus on gambling addiction as the psychiatric disorder that it is i.e., a health problem. It potentially changes the calculation of a judge. Should a health problem and its common consequences be punished?

Similarly, Luke reflects on how the prison system should serve its twin purposes, to punish and to rehabilitate,

> "I was sentenced to four years. The rehabilitation I've received directly from the criminal justice system was zero. So, if you're sentencing someone for four years, you kind of have to have a plan in place to rehabilitate that person."

May-Chahal et al (2017) conclude from their study of problem gambling in the UK prison population that 6000 prisoners are currently in need of gambling programmes within the prison system. Participants experiences chime with this data, that awareness and resources are needed to rehabilitate this population, which would also serve to better protect the public.

Luke goes on to say how different interventions may be needed depending on the severity of the crime, but ones which also meet the needs of the gambler,

"So, whether it's under a certain amount of money that fits in the sentencing guidelines, we can enable someone to go to a treatment centre to be treated, to serve a community order. If it's because the amount of money is higher, you might have to spend an amount of time in prison, but you'll go through this treatment pathway, but then you can come back to the treatment centre to finish off your sentence. For example, rather than going from prison back into your normal environment with no support. Because for some people that can be really damaging because they're going back into the environment that's causing them to gamble."

Taken together, participant's experiences provide a clear roadmap for criminal justice reform for gambling related crimes. For example, awareness training for staff right across the system (which would include the role of commercial influences and disregard for the law), to sentencing reform, to mitigation and independent reports in court and expert witnesses, to prison screening, diversion to community treatment programmes, to prison rehabilitation programmes. According to Smith et al (2022) rehabilitation programmes could offer targeted treatment for the most prevalent types of play, such as slot machine and casino gambling.

Discussion

This study examined the case for mitigation in court for those standing accused of financially based crimes to fund a gambling disorder, by exploring the experiences of thirteen adults with a prior gambling disorder who had been subjected to the criminal justice system.

This study had three main aims. The first was to use the experiences of those who have had a gambling addiction to explore the factors which may have contributed to impaired control of, and responsibility for, financially based crimes. Themes captured some of the common features of addiction, such as the behaviour becoming compulsive, or at the very least, extremely difficult to resist. Participants' extracts showed that in the context of gambling cues, at times of craving and when gambling was available, it felt as though they were driven by an uncontrollable force. This activity, as they experienced it, was transformed from a choice to something akin to a compulsion. It was experienced as automatic, with little conscious processing. It became an activity and a lifestyle that distressed them, yet they persisted.

This paradox was distressing for them, and their perceived inability to escape the addiction and its consequences led them to seriously consider ending their lives. The Department of Health and Social Care estimate that there are several hundred gambling-related suicides in England (Public Health England Gambling Related Harms: Evidence Review, 2019). Repetitive and intensive interactions with addictive products and environments had caused significant distress, leaving them close to suicide. They described how it captured their thoughts and preoccupied them, it was the most salient thing in their life that they would do anything to pursue. They described how the behaviour and lifestyle was opposite to their true character and

value set. These findings could have implications for mitigation – the data demonstrate the many ways in which the cases do not conform to conventional notions of theft. An argument can be advanced from the data that they were not straightforward cases of theft. Participants had led normal lives, with normal families and normal jobs. Participants were significantly changed, their choices were constrained, their minds had been trained to pursue this activity at any cost, including using stolen funds. Recovery from gambling disorder was accompanied with recovery of values and personality.

The second aim was to use participants' experiences to explore the role of industry products and practices, the regulatory framework, gambling disorder, and financially based crimes. Participants' experiences illustrated how operators' products and practices, coupled with a disregard for regulatory compliance, played a material role in the development, worsening, and maintenance of their addiction. Participants referred to the rapid, continuous nature of sports and casino products, that offered immediate reinforcement and encouraged intensive consumption. Their experiences suggest that marketing was pervasive and targeted to their pattern of play with the effect of accelerating unaffordable losses. They also described how marketing was used to entice them back to operators when they attempted to move away.

They considered the worst of marketing strategies from their perspective were loyalty or VIP schemes. Participants described being 'groomed' by account managers who would develop personal relationships with them, befriending them, and showering them with the types of gifts and hospitality usually reserved for the rich and wealthy. They felt special, they felt loyal to the brand, and their unaffordable losses accelerated significantly while they were on these schemes. Participants' data shows that operators aided and abetted their addiction, and operator products and practices played a material role in contributing to the commission of the offences. Participants' experiences and stories suggest that operators disregarded regulations and the law, failing to protect them. Record regulatory fines for failures on the major UK operators suggest that participants experiences were not unusual. These findings suggest that a case could be made for operator practices to be considered in mitigation, as they seem to play a direct role in the addiction and the commissioning of financially based crimes.

The final aim of the study was to explore the implications for reform to reduce gambling related criminal activity and reform of the criminal justice system to offer a more humane response. Themes emerged about the current inability of the criminal justice system to understand gambling harm and addiction, and the lack of screening and rehabilitation on offer. Participants expressed a wish for gambling to be given parity of esteem with alcohol and drug addiction and related offending. Implications for the reduction in harm, crime and reform are considered below.

The case for mitigation, made by the participants throughout the study, can be summarised in three interconnected ways:

1) Gambling Disorder is a serious psychiatric disorder and should be considered by the courts like other disorders that have a significant effect on decision-making, and self-control. Participants experiences reflect that it significantly

alters cognition, behaviour, and personality. It led to a preoccupation of thinking even when not in the gambling situation. Other responsibilities and interests lost their value as gambling becomes the most salient thing in a person's life. Over time enjoyment for gambling was lost as well, replaced with an irrational wanting to continue gambling despite negative consequences. It significantly altered decision-making and constrained choices. Participants experiences typically describe a shift from conscious processing to more compulsion-like processing in the context of craving and an accessible gambling situation. Diminished inhibitory control and agency was experienced leading to significant financial losses and feelings of shame. Desperation gambling resulted marked by loss chasing and mounting urgency for a redemptive win. Admitting to the problem meant not only acknowledging the addiction, but telling loved ones of the web of secrecy and lies, the accumulated debts the family are in, the crimes that have been committed, and the likely loss of employment and family as the prospect of prison looms. Suicidal thoughts and actions were common as participants saw limited choices to 'make good' the situation. Participants were distressed, experiencing a significantly altered mind state.

2) While participants accepted that they have responsibility for their crimes, participants made a case for courts to consider the contribution of the gambling operators in prompting, maintaining, and exacerbating the gambling disorder, and the extent to which those with gambling disorder are exploited or victimised. According to Dow Schull (2012) just as there are so-called problem gamblers, there are problem products, problem gambling environments, and problem business practices. The process of gambling disorder in these cases revealed a causal chain that extended beyond any vulnerability of participants to the material contribution of the gambling operators, as well as a lax regulatory framework and lack of compliance by operators.

The transition to online gambling has meant that the casino is now your home, your car, your workplace. If you are a gambler it goes with you wherever you are. Rapid, continuous forms of gambling are ubiquitous, designed to make players gamble longer, faster, and more intensively, and to turn casual players into repeat players (Dow Schull, 2012). Most participants played online slots, combining a continuous platform (online) with a rapid, continuous product. The structural characteristics of slots, including programmed near misses, losses disguised as wins, alluring sounds, and speed of play, are responsible for play persistence while you are losing (Livingstone, 2005). They generate and reinforce erroneous cognitions, mislead players, and have the potential to deliver them into a mindless, trance-like state (Dow Schull, 2012; Murch et al, 2020). Slot machines are the product with the fastest trajectory to addiction (Zimmerman, 2002) and playing these continuous format types of gambling is the single biggest risk factor for gambling addiction, beyond any individual factor (Allami et al., 2021).

Participants revealed the synergistic effects of slot machine design and marketing, including the use of VIP loyalty schemes. Marketing and loyalty programmes produce gamblers who consistently wager more than intended (Smith and Simpson, 2014). Through algorithms and behavioural profiling operators can target players to increase their losses. Even when participants tried to move away from an operator, they were lured back by inducements too good to turn down, as they sought a redemptive win. Rather than protecting those experiencing unaffordable losses, participants provided evidence that the operators use practices designed to reinforce and accelerate losses. Even when participants were gambling with excessive wagering (often the proceeds of crime), they reported ineffective or no intervention from operators, in breach of laws and regulations. The culture of marketing, inducements and VIP schemes, this evidence suggests, abet and exploit our natural, uniform vulnerabilities. The courts may also want to consider the role of the regulator if they have failed in their duty to safeguard vulnerable customers and to prevent gambling from being associated with crime, and for the proceedings of crime being used.

3) Participants made the case for mitigation in the context of committing the crimes. Participants had not come the attention of the authorities before. They had jobs and families and prosocial values, which returned upon recovery from gambling disorder. At the time of committing financially based crimes gamblers had exhausted their finances. They had a severe gambling disorder, and found themselves in the most tempting of circumstances, where money is available, in a context of poor organisational checks, balances, and audit trails. Desperate for a redemptive win, gamblers genuinely commit to themselves to put the money back once it happens. The crimes made them remorseful, and when they came to light, they were so ashamed they wanted to take their own life.

Implications of the study

There are recommendations for reform because of this study. The participants' stories suggest that the criminal justice system is ill-equipped to deal with gambling-related crime. It is recommended that staff need training and awareness, from the police to the judiciary, to prison staff, and through to probation. Gambling disorder deserves equity of esteem to drug and alcohol related offending, and a deep understanding of the process of the addiction, how it substantially impairs self-control and constrains choices, in the context of anxiety and desperation. It is recommended that the courts consider the material contribution of the gambling operators in prompting, maintaining, and exacerbating the addiction, and any disregard of laws and regulations. It is recommended that psychiatric or psychological reports are utilised in court proceedings, as well as expert witnesses. The expert witness can provide an assessment of the clinical status of the accused (supported by gambling transaction data), as well as the context in which the crimes were committed, and the extent to which the gambler's behaviour was cultivated by the operators. It is

recommended that rehabilitative sentences are used for many of these offences. Prison diversion treatment orders are common in alcohol and drug-related financial crimes, yet do not exist for gamblers. Gambling courts could be considered, as currently exist in New Jersey and Las Vegas, to ensure consistency and a therapeutic jurisprudence model in dealing with gambling-related criminal activity. Drug courts have been used for many years in the UK, so there are models to learn from. Where the crime is more serious, a custodial sentence may be required, but here the recommendation is that the prison service can better meet their duties and obligations toward convicted offenders by providing rehabilitation programmes in prison. The Probation Service can meet their obligations by implementing community programmes and/or signposting to evidence-based treatment.

It is recommended that reforms are introduced to strengthen the regulatory framework and powers to ensure gambling is not associated with crime. Should these changes prove less than optimal then reform should ensure that any proceeds of crime, such as those discussed in these cases, be returned to the victims by operators. For too long the proceeds of gambling related crimes have been transferred to operators, and to governments through taxation, and retained. Many of the participants in this study were, and are, subjected to the Proceeds of Crime Act (2002), meaning that assets were confiscated, and they still cannot own assets or have money as they continue to fall subject to the Act. This should be reviewed in such cases. The argument has been made in this study that these funds have gone to the operators because of overwhelmingly one-sided odds, deceptive product design, and in the case of VIP schemes, exploitation.

It is recommended that gambling disorder is re-conceptualised to integrate a public health lens which recognises commercial influences. This may aid gamblers prospects within the court system. Gambling disorder has been understood through the prism of the medical model, caused by a dysfunction within the person (Smith and Simpson, 2014), and the narrow focus of industry funded research has perpetuated a focus on problematising individuals (Schalkwyk et al., 2021). This supports the interests of the gambling operators and government, as it deflects from the contribution they make. Operators typically adopt a 'responsible gambling' paradigm, a discourse supposedly designed to reduce gambling harm. This deflects attention from their products and practices, and shifts blame and responsibility to individual gamblers. Many have called for this to be abandoned due to its lack of evidence and its complicity with vested interests, with a public health framework adopted (e.g., Livingstone and Rintoul, 2020). Conceptualisations that integrate the contribution of operators, as well as the nature of the regulatory environment, could lead to not only a more humane response by the courts, but may also lead to operators being subject to criminal sanctions. A Statutory Duty of Care may be necessary to change operator culture, and to make criminal sanctions on the directors of operators more realistic.

This study has also made a case for the need for significant reform of gambling products, gambling environments, and the culture of inducements and loyalty programmes. The regulator may need increased resources to closely monitor

operator practices, and to suspend or permanently remove licenses for abuses and failures.

Independently funded research via research councils is most likely to lead to a more holistic understanding of gambling problems, and a focus on industry practices and products. The funding of gambling research is commonly provided by the gambling industry, with implications for the nature and conclusions of these studies. This study offers a glimpse into largely unheard stories and experiences, and what could be studied and discovered if research was independently funded through research councils. This could lead to a true picture of gambling related harm, its causes and consequences, and the case for greater regulation and policy. Further research of this nature can work towards rendering gambling products, environments and operator practices safe, or as safe as possible.

There are limitations to this study. The sample is small, and it may be that the networks of the author are not representative of the wider population of gamblers who have committed financially based crimes. Future research could use a bigger and more representative sample. The recall of participants may have been clouded by time, as some had been out of prison for a few years. Their experiences may also have been subjected to post-hoc justification. Acquiring data in real time may improve upon this. Reflexive thematic analysis involves the active participation and interpretation of data by the author. While the author is in a strong position to do this as an expert in the field, there is a risk of bias in these interpretations and the conclusions formed. This risk could be mitigated by collaborating with other academics in considering publications from this data.

Conclusion

In conclusion, the rich and moving experiences of gamblers who fall foul of the criminal justice system provide a framework for better understanding the determinants of gambling related financially based crimes, and thereby considering mitigation. Courts should integrate the ability of a gambling disorder to constrain choices, impact inhibitory control and agency, and change thinking and behaviour so dramatically. Moreover, courts should examine the material contribution of operators' addictive products and their business practices of accelerating the problems of highly engaged customers using modern marketing strategies including VIP schemes. Forensic Psychologists can act as Expert Witnesses in court proceedings to aid this process and build upon the work of Smith & Simpson (2014) who outline their work in Canada, which produces positive outcomes for defendants. Perhaps most of all it falls on the government and regulator to prevent such levels of harm and crime in the first place.

Chapter Two:

What are the Effects of Structural Characteristics in Slot Machines on Players? A Systematic Review

Introduction

For more than 20 years, UK Government policy has portrayed gambling as enjoyable, an expression of adult freedom, and harmful only to a minority (Van Schalkwyk et al., 2021). General population surveys in the UK have tended to perpetuate this narrative, estimating that between 0.4% (2018 Health Survey for England only) and 0.7% (2016 Health Survey for England, Wales & Scotland) of the population experience 'problem gambling'. The prevailing narrative is that it is a matter of a clinically relevant minority, reflected in a rather lenient regulatory environment.

These headline figures tend to disguise the much larger sub-clinical numbers of people experiencing significant harm (Abbott, 2017), and as a cross-sectional survey it doesn't consider the high levels of "churn" seen in epidemiological studies of those entering and exiting problematic and at-risk behaviour (e.g., Billi et al., 2014). Each year, around half move out of the problem gambling category and are replaced by 'new' problem gamblers (Abbott, 2017). Moreover, using prevalence within the general population is misleading; if the focus turns to the gambling population or to those who gamble regularly, a different picture emerges (Schull, 2012). For example, over half of those who regularly use electronic gaming machines (EGMs) either have, or are at risk of, problem gambling (Livingstone & Wooley, 2007). The rates of problem gambling are 3 to 4 times higher for slot machine players than for other gambling activities (Williams et al., 2011). This suggests that rather than the traditional focus on individual risk factors for gambling (such as age, gender & impulsivity – which tends to ignore the role of the activity), there are factors relating to the product worthy of investigation. The quintessential gambling product is the slot machine, and it is the one that has been subject to most scrutiny both in terms of harm as well as academic research.

The modern slot machine has evolved through many developments since its inception in the 1890s in California. Those rudimentary mechanical devices would be unrecognisable from today's machines, which are effectively video games with an array of design features, including multiple pay lines, which have been implicated in why these are the most popular and profitable format of gambling worldwide (Turdean, 2011).

They are widely available all over the world, and accessible in the United Kingdom in casinos, bingo halls, amusement arcades, service stations, and public houses. This ease of access has caused concern, which has been exacerbated by the advent of online gambling, where in theory gambling can be with you wherever you are. There are other widely available gambling activities, such as lottery, bingo and scratch cards, yet it is the slot machine that is most associated with harm with evidence showing that around half of players experience harm or problem gambling (Livingstone & Wooley, 2007; NatCen, 2018). Ease of access and availability seems only part of the story.

Allami et al. (2021) conducted a meta-analysis of adult population prevalence surveys to examine risk factors for gambling problems. The results indicated that risk factors with the highest effect sizes are associated with continuous-play format

gambling products, notably electronic gambling machines (i.e., slot machines). According to Breem and Zimmerman (2002) the reason for this may be the rapid, continuous, and repetitive nature of the products. They labelled EGMs as the "crack cocaine of gambling". Delfabbro et al. (2020) reviewed Australian community prevalence surveys between 2011-2020 and found that compared to racing and casino gambling, it was electronic gambling machines (EGMs) that were associated with most gambling problems. Over 80% of 'problem gamblers' played EGMs within these samples. Those playing EGMs played most frequently compared to other forms of gambling, and the authors state that this may be due to their structural characteristics. A report by NatCen (2018) for the Gambling Commission in the UK which tracked player data showed that slot machines were associated with at-risk and problem gambling rates of 45%.

Breen and Zimmerman (2002) were the first to establish empirically that machine players had the most rapid trajectory to Gambling Disorder than those playing more traditional forms of gambling (1.08 years compared to 3.58 years). This finding includes those who had played other gambling activities previously with no problems. They found that intrapersonal factors such as co-morbid disorders or gender did not affect this trajectory. Taken together the gambling product itself explains harmful gambling to a certain extent, over and above individual risk factors.

To explain the differential risk of the slot machine, research has turned to specific 'structural characteristics' (i.e., design features) (Parke & Griffiths, 2007). For example, an expansive fifteen-year anthropological study of slot machines in Las Vegas by Dow Shull (2012) concluded that the design features of machines were responsible for achieving two goals of the gambling industry 1) to maximise revenue per available customer and 2) to maximise 'time on device'. While they are successful at this, she observes that there is a concurrent level of distress and harm on gamblers associated with them. Just as there are so-called 'problem gamblers' Shull says there are problem machines, problem environments and problem industry practices.

It is argued that to make slot machines more engaging, immersive, and motivating (even as you are losing), designers intentionally include an array of features or 'structural characteristics' that foster play persistence, generate and reinforce erroneous cognitions, and deliver players into an immersive, trance-like, distraction-free state (Livingstone, 2005; Dow Schull, 2012). For example, auditory and visual reinforcement to compound an already arousing win (Schottler Consulting, 2019). Structural characteristics have been defined as those characteristics that facilitate the acquisition, development, and/or maintenance of gambling behaviour irrespective of the individual's psychological, physiological, or socioeconomic status (Park & Griffiths, 2007). These design features are numerous but include event frequency, the near miss effect, losses disguised as wins, alluring sounds and graphics, stake size, speed of play, the schedule of reinforcement, and payout percentage (Parke and Griffiths, 2007).

Different authors have speculated as to how structural characteristics have their effect. Yucel et al. (2018), for example, suggest that they can modify fundamental

aspects of human decision-making and behaviour. They cite examples such as such as classical and operant conditioning, cognitive biases, and dopamine signals. According to Barton et al. (2017) these features can establish classical conditioning and can lead gamblers to chase losses to experience the arousal again. Harrigan and Dixon (2009) examined manufacturing design documents describing the algorithms and mathematical equations which underpin slot machine games. They found that slot machine spins may be biased to provide a more immersive, engaging experience. For example, the experience of "almost winning" or a near miss at a rate much higher than expected by chance.

There has been a range of reviews on structural characteristics of gambling machines and environments (e.g., Parke and Griffiths, 2007; McCormack & Griffiths, 2013). These reviews provide a helpful guide to the common design features of slot machines. However, only Barton et al. (2017) has provided a systematic review, and this was on two structural characteristics only (the near miss effect and losses disguised as wins). Other review papers (e.g., Schlotter Consulting Pty Ltd, 2019) include a much wider array of design features. However, they tend not to include or evaluate experimental work which is important in tackling issues of causality. Some of these papers have not been peer reviewed. There is a need to subject a more comprehensive set of structural characteristics to a systematic review to broaden understanding of the influence of design features, and to update the research base, as the technology of machines continues to advance.

The value of this review could also have implications for crime reduction. Slot machines have been associated with crime. An Australian study found "a consistent positive and significant relationship between slot machine play and crime rates, especially income-generating crime rates at the local level" (Wheeler et al., 2011:315). This study used expenditure on slot machines to model directly its influence on crime in local areas. Smith & Simpson (2014) referred to the criminal trials in which the first author had been an expert witness. All of those on trial were EGM players, who had tended to plead guilty to non-violent financial crimes. It follows that if the slot machine responsible for high levels of harm and addiction, including crime, attempts to understand the design features responsible for this could have valuable implications for regulation and policy.

This systematic review aims to:

1) Use experimental and quasi-experimental research to identify the key structural characteristics of slot machines
2) Evaluate their influence on players and play persistence.

Method

Firstly, the following were checked, which would likely highlight if such a review had been done before:

- Cochrane Library: http://www.cochranelibrary.com/

- Joanna Briggs Institute at University of Adelaide: http://joannabriggs.org/research/registered_titles.aspx
- PROSPERO   https://www.crd.york.ac.uk/prospero/
- NHS research register https://www.researchregistry.com/
- REGARD (database of the ESRC) http://www.curee.co.uk/search/node

As a result of searching these research databases it was concluded that this review had not been done before.

Search Strategy

Initial scoping searches were carried out, to establish some of the relevant literature in relation to the review question, as well as the more common structural characteristics that had been subjected to empirical review. PsychINFO and MEDLINE were used to get an idea of the breadth and type of available evidence. Reading the keywords of existing review papers better enabled the author to focus the search terms. It also gave an idea of the types of study designs and outcome measures that would focus the review, as well as informing the inclusion and exclusion criteria.

A systematic search for eligible studies was carried out using the following databases: PsychINFO, PubMed, Scopus, and Medline. The structural characteristics that were searched for are listed here:

Keywords: Gambling AND Slot Machine OR Electronic gambling machine OR Pokie OR fruit machine AND Structural characteristics OR losses disguised as wins OR near miss* OR event frequency OR Bet frequency OR event duration OR Speed of Play OR stake size OR sound effects OR jackpot OR familiarity OR payback percentage

In addition, the author searched under key authors who have conducted experimental studies on the structural characteristics of slot machines, following the systematic search, to pick up any studies not accounted for by the main systematic searches.

Eligibility Criteria

Studies post-1990 in the English language, or translated into English, were included to best represent the modern commercial gambling machine.

Study design: Studies which used experimental designs, presenting primary evidence with analysis, and peer-reviewed, were included (this was determined by reading abstracts, or the full text where there was uncertainty). All reviews, commentary, opinion, and those which did not present primary evidence or non-analysed observations were excluded.

Population: Human adults (aged 18+) in the general population, recreational gamblers, as well as those experiencing gambling harm and Gambling Disorder were included. Studies using adolescents or children were excluded. Animal studies were also excluded.

Intervention: Participants within the studies would be exposed to simulated or real slot machines, with the key variable tested being a slot machine structural characteristic.

Outcomes: All directly measured or identified outcomes were included relating to the effect on the players. Effects may vary depending on the structural characteristic under scrutiny, but were initially defined as changes in:

1) Gambling behaviour (e.g., bet size; spend; odds of placing a bet; speed of bets; play persistence; number of bets; number of episodes; time in play; post-reinforcement pause time). Proxies for gambling behaviour were also included via self-report (e.g., desire to play, slot machine preference)

2) Psychobiological effects (i.e., the physiological arousal of players via skin conductance level and heart rate; real-time brain activity as measured by EEG or fMRI, and a proxy for arousal such as how hard a spin button is pressed)

3) Psychological Effects such as the impact on a player's thoughts, emotions, and the perception of winning.

Data Extraction

A data extraction checklist was developed by the author to guide the reviewer throughout the data extraction stage. The data extraction checklist used the following categories: authors, jurisdiction, study design, sample size and population, gambling task, setting, structural characteristic, a description of the effect or outcome, whether there was an effect on the players, and the source of funding for the research.

The data extraction tool yielded evidence which is summarised in Table 1 (below). A narrative summary approach was preferred, due to the diversity, multiple number, and multiple domains of studies. This method had the best chance to answer the research aims and could provide the best application for policy and practice. Studies were grouped based on the observed structural characteristic. Due to the diversity in the study designs, data collected, outcomes, domains, and populations utilised in the studies, a meta-analysis of the results was not pursued.

It was also noted that the existing systematic review on structural characteristics of slot machines did not use a risk of bias tool for similar reasons (Barton et al., 2017). However, the source of funding for each study, as well as the key limitations to the studies, are presented Table 1. The funding source of the studies may have presented a risk of bias. Many studies revealed no clear source of funding, and the declarations of interest of many of the authors was missing. Some studies had industry funding, both direct and indirect funding. Some studies had independent sources of funding. There was no clear pattern to the findings by examining funding source, but these studies reflect the reality of gambling research funding and the need for both independent sources of funding and for authors to declare any conflicts of interest. A risk of bias tool was not used due to the diversity of studies. Structured risk of bias tools are available via Cochrane for randomised and non-randomised trials, but a suitable tool for the diversity of studies was not available as most of the questions on these checklists did not apply to the nature of these studies.

Results

Figure 1 (below) is a schematic outline of the screening process. The systematic search yielded 439 studies initially. Once duplicates were removed 176 studies were retained for screening. The screen using title and abstract led to 109 further studies being removed, leaving 67 studies to be exposed to a full text screening process. As a result, 9 were removed, leaving 58 that fully met the inclusion criteria which were subjected to the final review.

Figure 1: PRISMA Flow Diagram of search strategy for systematic review
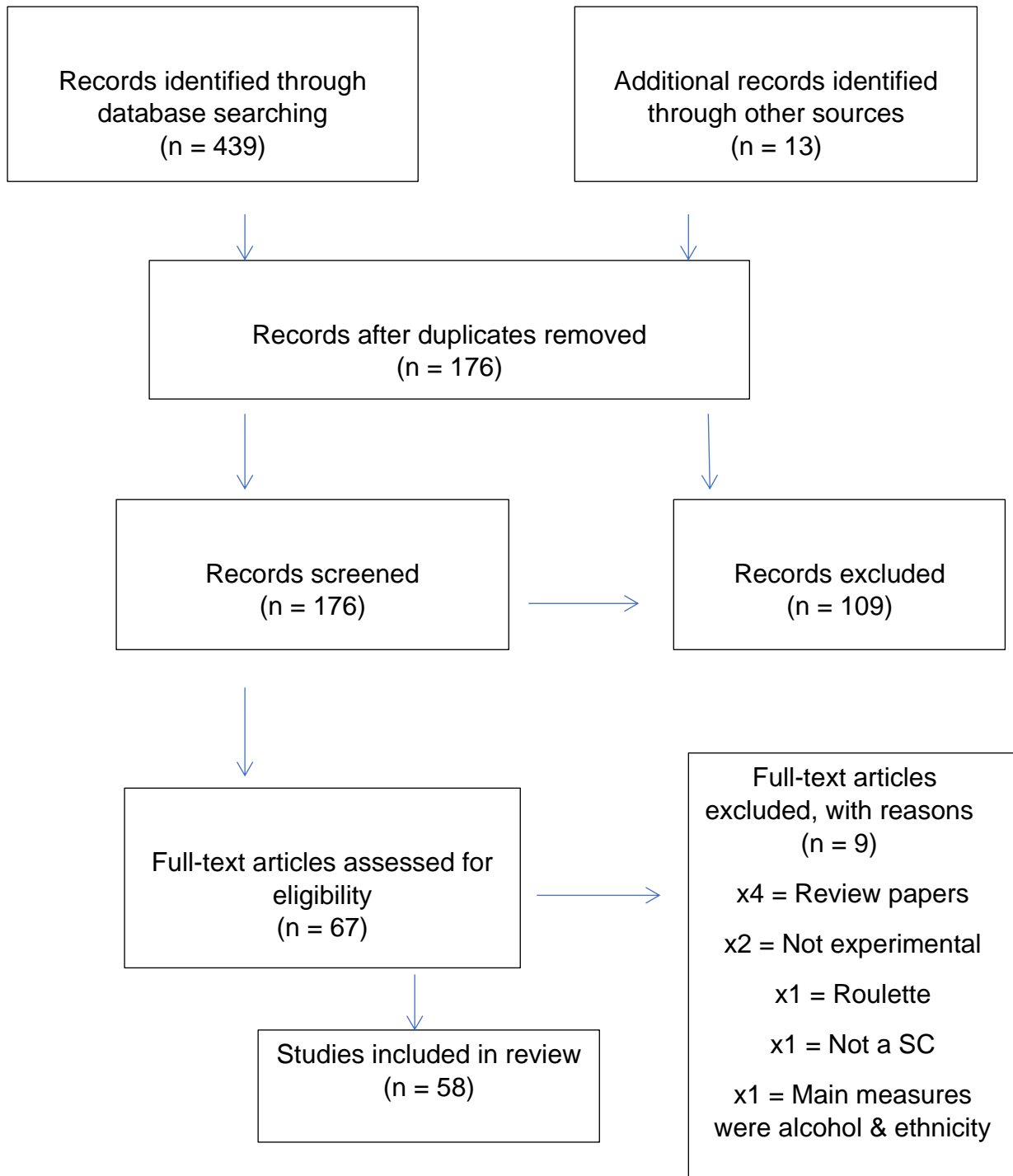
The breakdown of studies by structural characteristic was as follows:

- Jackpot (7)
- Losses disguised as wins (14)
- Near miss effect (20)
- Payback percentage (9)
- Sounds (3)
- Speed of play (5)

Characteristics of the included studies are summarised in table 1 (further below), shaded differently for each one, for ease of navigation.

The table includes different variables for ease of interpretation. For example, the location of the study (jurisdiction) is included. This gives the reader a sense of where this type of research is coming from (and not coming from) but may also have implications for the nature of gambling in that country. The 'study design' gives the reader a sense of the type of experiment that was conducted. The sample variable illustrates not just the sample size, but also the nature of the participants, and the conditions they were allocated to. This can assist in guiding conclusions as to whether structured characteristics have a differential effect on problem gamblers, and whether they influence 'healthy' participants. The specific gambling task (e.g., using real money) affords a sense of ecological validity. Results are summarised as concisely as possible, and a quick guide as to whether results suggested the characteristics influenced players. The table concludes with a 'source of funding' category which describes whether the study was independently funded or funded via direct or indirect industry funds.

Table 1: Characteristics and findings of included studies (N=58)

Authors	Jurisdiction	Study Design	Sample	Gambling Task	Structural Characteristic	Results	Source of Funding
Browne et al. (2015)	Australia	Naturalistic Observation Study.	234 gamblers (162 female). Mean PGSI 2.7; 9% scored 8+	Slot Machine Play	Jackpot	At-risk gamblers chose machines with greatest jackpots (vs. low risk gamblers). Jackpot-oriented machines were associated overall with a greater spend. Higher PGSI players tended to bet more funds per spin.	Gambling Research Australia (Gov)
Crewe-Brown et al. (2014)	Australia	Experimental: Within subjects design.	171 1st year undergraduate students (120 female). 61.4 % were classified as non-gamblers, 26.9 % low risk, 8.8 % moderate risk, and 3 % as problem gamblers.	Reading 55 gambling vignettes. Self-report how much they would bet under different prize conditions on an EGM.	Jackpot	As prize levels increase the odds (relative risk) of an individual placing a bet on an EGM and the amount of money reportedly bet tends to increase. Concluded that prize sizes do influence propensities to gamble and level of bets.	Unclear
Donaldson et al. (2016)	Australia	Experimental	117 general population volunteers (53 females)	Laptop simulated EGM. Starting $20 real-money stake and a chance to	Jackpot	Gambling intensity (speed of bets, persistence) was greater when the Jackpot value was unknown, especially when a winning-symbol combination suggests that such a win is possible. Physiological arousal	Gambling Research Australia

				win a Jackpot ($500)		were most positive when the winning jackpot combination was a mystery.	
Flepp, and Rüdisser, 2019	Switzerland	Slot machine player records	5,169 casino gamblers	Slot machine play	Jackpot	Players wager significantly less money after hitting a jackpot, which implies that players reduce their risk-taking behaviour and thus act more cautiously after experiencing gains, irrespective of the size of the jackpot.	Unclear
Li et al., 2016	Australia	Experimental	123 volunteers (72 female). 34.1, 21.1, and 10.6 % of the participants were low-risk, moderate-risk, and problem gamblers on the PGSI.	Computer-simulated EGM	Jackpot	Players placed the largest bets (20.3 % higher than the average) on large jackpot EGMs that were represented to be deterministic and non-progressive. Jackpots that were non-deterministic and progressive also promoted high bet sizes (17.8 % higher than the average). Higher PGSI scores tended to bet more on EGMs with jackpots, & males experienced more arousal.	Gambling Research Australia
Quilty et al., 2016	Australia	Experimental: Within subjects	187 adults (85 female). 50% had a PGSI of 8 or above. Participants	Reading gambling vignettes, and asked to estimate	Jackpot	Participants reported increased gambling (longer time and greater number of occasions) in response to increased monetary payout.	Ontario Problem Gambling Research Centre

Study	Country	Design	Sample	Machine	Manipulation	Findings	Funding
			gambled on an average of 9.3 occasions per month.	how much they would gamble to win monetary prizes of increasing amounts.			
Rockliff et al., 2015	Australia	Experimental. Randomised block assignment to three conditions.	130 volunteers (74 females). 55.1 % no risk, 21.5 % low risk, 18.6 % moderate risk, and 4.6 % problem gamblers on the PGSI.	Computer simulated Slot Machine	Jackpot	Bet speed was significantly slowed by the jackpot expiry message compared to the irrelevant message condition and the no-message control condition. Player losses past the 20th trial were significantly reduced in the cash-jackpot expiry condition. Jackpot expiry might be an effective means of providing a 'soft brake' for player behaviour	Gambling Research Australia
Dixon et al. (2018)	Canada	Experimental: Within-subjects design	153 Casino gambler volunteers (62 Female). Spread of PGSI scores (39 problem gamblers)	Slot machine simulator	Losses Disguised as Wins	Using how hard participants pressed the button as a measure of arousal, this showed that LDWs were treated similarly to small wins.	Gambling Research Exchange (GREO)
Dixon et al. (2010)	Canada	Experimental: Within-subjects design	46 students (novice gamblers)	Slot machine	Losses Disguised as Wins	Skin conductance amplitudes were similar for wins and LDWs. Both were significantly larger than regular losses.	Manitoba Liquor & Lotteries Grant*

Graydon et al., 2021	Canada	Experimental: Study 1) Non-systematic review of 13 studies of win overestimates. Study 2) Within subjects design	132 experienced gamblers (50 female). 22 moderate risk and 26 problem gamblers (from PGSI scores)	Slot Machine Simulator	Losses Disguised as Wins	A "sweet Spot" of win overestimation when a moderate number of LDWs are utilised. A high number decreases this effect. The maximal win over-estimation was 19.6% LDWs. Gamblers continue to play during a losing streak when a moderate number of LDWs are used.	Manitoba Liquor & Lotteries Grant*
Graydon et al., 2018	Canada	Experimental: Participants play 100 spins on four games set at different payback and LDWs. They rate preference and which game they want to continue playing.	33 undergraduate students experienced in slot play (16 were non-problem gamblers; 16 were low risk gamblers)	Slot machine simulator	Losses Disguised as Wins	Players preferred the game with a positive payback percentage with LDWs over all the other games. Authors conclude that LDWs influence game selection.	Nat Sciences & Engineering Research Council of Canada and Ontario Problem Gambling Research Centre
Graydon et al., 2017	Canada	Experimental: Mixed: Within and between subjects design	54 novice participants	Slot machine simulator	Losses Disguised as Wins	LDWs led novice gamblers to overestimate their wins but educating them about LDWs can reduce win overestimates.	Ontario Problem Gambling Research Centre
Graydon et al., 2019	Canada	Experimental: Between	132 experienced gamblers with varying levels of	Slot machine simulator	Losses Disguised as Wins	Moderate proportions of LDWs appear to make higher-risk	Ontario Problem Gambling

		subjects design	problem gambling symptomatology randomised to three LDW conditions (low, moderate and many LDWs)			players gamble for longer despite financial loss.	Research Centre
Harrigan et al., 2015	Canada	Experimental: Within subjects design	10,000 players arrive with a $100 bankroll & make $1 wagers until broke (gamblers ruin)	Slot machine simulator	Losses Disguised as Wins	Players prefer multiline machines where the majority of 'hits' are LDWs. They also persist for significantly longer than single line (no LDWs)	Ontario Problem Gambling Research Centre: Authors declared no COI
Jensen et al., 2013	Canada	Experimental – Between subjects design. Random assignment to three-line or six-line slot.	47 novice undergraduate players played 200 spins on a real slot machine.	Slot Machine	Losses Disguised as Wins	The more LDWs players were exposed to, the higher their win estimates. The majority of participants also verbally miscategorised LDWs as wins.	Ontario Problem Gambling Research Centre
Leino, 2016	Norway	Observational Study	8636 individual's account-based gambling data playing LDW games on a randomly selected day (over 2 million bets)	Slot Machine	Losses Disguised as Wins	LDWs increase the likelihood of continuing betting compared to losses as measured by number of bets made.	Research Council of Norway

Lole, 2014	Australia	Experimental	15 problem gamblers vs 15 non-problem gamblers	Slot Machine	Losses Disguised as Wins	PGs had sig lower SCR vs non-PGs. Skin-Conductance Responses (emotional arousal) to LDWs did not differ between conditions. SCR responses not significantly higher for LDWs than losses.	Australian Research Council Linkage Grant
Sagoe et al., 2018	Norway	Experimental: experimental group had 30% LDW exposure. Control did not.	92 undergraduate students (57 female). Mostly non-PG. 5 were moderate risk. No PGs.	Simulated slot machine	Losses Disguised as Wins	Groups did not differ on total bet size, bet size variation, mandatory phase (50 trials) bet size, no of bets placed after mandatory phase, & remaining credits after mandatory phase.	Unclear: Authors declared no COI
Scarfe et al., 2021	Canada	Experimental. One condition positive sound attached to LDW; the other condition had negative sounds attached to LDW (like a full loss)	73 undergraduates (63% female). All had played a slot in last 12 months. 70 were low risk; two were moderate risk; one fell into PG category.	Simulator slot machine	Losses Disguised as Wins	When LDWs are linked to positive sounds players react to them as if they are wins. When LDWs were paired with negative sounds players respond to these like the losses they are. As measured by post-reinforcement pauses (PRPs).	Some industry funding (Manitoba Liquor & Lotteries*)
Sharman et al., 2015	UK	Experimental. Randomised to LDW or no-LDW groups.	40 university students	Simulator Slot Machine	Losses Disguised as Wins	LDW group afforded higher valence ratings to all non-win outcomes vs those who got no LDWs. LDW trials also rated as more enjoyable than trials without LDWs. LDWs also enhanced motivational impact	Graduate Scholarship University of Cambridge

						and aversive effect of near misses.	
Harrigan et al., 2011	Canada	Experimental: Within subjects	The authors of the paper were the participants	Simulator & a real game 'Money Storm'	Losses Disguised as Wins	The mini-max strategy (placing small bets on multi-lines) doesn't affect payback percentage (remains constant), but does significantly increase reinforcement rate, due to LDWs.	Ontario Problem Gambling Research Centre
Alicart et al., 2015	Spain	Experimental	24 healthy volunteers (15 female)	Slot simulator. Delivering four outcomes: gain, near miss, loss, and no information.	Near Miss	Larger power increases for wins and near-misses compared with losses (as measured by EEG). Power changes were lower in the anticipation phase than the resolution phase. Conclusion: Near-misses recruit the reward network and are experienced like a win.	Spanish Government Grant
Banks et al., 2018		Experimental: Binary Choice Tasks and a Value Judgement Task.	192 undergraduate students (142 female).	Two simulated slot machines	Near Miss	Near misses are more valued than losses in a 'losing machine' context (where reward expectations are low). NMs are negatively valued in a winning machine context (inducing frustration). The NM can negatively or positively influence choices depending on context. Bet size is increased following near-misses, irrespective of type of machine.	Unclear
Belisle et al., 2016	USA	Within-Subjects experimental	Expt 1: 12 graduate students (9 females). No	Simulated slot machines	Near Miss	Expt 1: Near misses more reinforcing than total losses, as measured by response latency (PRP). Expt 2 replicated expt 1.	Unclear

		design. Two experiments.	PGs. Expt 2: 13 undergraduates (11 females). No PGs.				Erroneous belief that NMs are closer to wins than total losses may be due to stimulus generalisation (as measured by reel arrays & generalisation gradients).	
Billieux et al., 2012	Switzerland	Within-subjects experimental design.	84 participants (53 female), mostly undergraduates who gambled at least monthly. French speaking.	Slot simulator: delivering win, near-miss, and total loss. Subjects completed gambling-related cognitions scale.	Near Miss	Skill-oriented gambling cognitions predict higher subjective ratings of desire to play following NM outcomes. Supporting the idea that NMs foster the illusion of control.	Unclear
Chase and Clark (2010)	UK	Within-subjects experimental design	20 regular gamblers	Slot simulator	Near Miss	NMs recruit same reward-related brain circuitry as wins in regular gamblers. Gambling severity predicted a greater response. NMs may enhance dopamine transmission in disordered gamblers.	ESRC and Responsible Gambling Trust*
Clark et al., 2012	UK	Within-subjects experimental design	Healthy students (N=33)	Simulated Slot Task	Near Miss	NMs rated as less pleasant than full misses. On personal choice trials NMs produced higher ratings of 'continue to play' than full misses. Compared to full-misses, NMs elicited an electrodermal increase and greater heart rate acceleration.	ESRC and Responsible Gambling Trust*

Clark et al., 2009	UK	Within subjects experimental design	Expt 1 (self-reports after slot play): 40 healthy volunteers Expt 2: 15 volunteers (FMRI during slot play)	Slot simulator	Near Miss	Compared to full misses, near misses were experienced as less pleasant but increased desire to play, when the gambler had personal control over their play. NMs recruited win-related brain circuitry. Conclusion: NMs invigorate gambling.	ESRC and Responsible Gambling Trust*
Clark et al., 2013	UK	Within subjects experimental design	60 volunteers	Slot simulator	Near Miss	NMS were akin to wins as they increased desire to play and electrodermal activity. Greater HR acceleration following NMs was associated with persistence.	British Academy Grant
Detez et al., 2019	Australia	Within subjects experimental design	60 adults with no problem gambling history	Virtual Reality Casino & self selected slot machine	Near Miss	Significant HR acceleration occurred for NMs and losses vs wins. Both were associated with a faster next spin response.	Monash School of Psychological Science & David Winston Turner Endowment Fund
Dixon et al., 2009	USA	Within subjects experimental design	16 recreational student gamblers	Slot simulator	Near Miss	In pre-test condition participants rated NMs as closer to wins than to losses.	Unclear
Dixon et al., 2011	USA	Within-subjects experimental design	65 participants (34 females); five groups recruited at different levels of gambling	Slot simulator	Near Miss	SCR responses significantly larger for NMs than wins or losses. HR deceleration significantly larger for NMs than wins or losses.	Ontario Problem Gambling Research Centre

			severity (novice to PG).				
Dixon et al., 2012	USA	Between subjects experimental design	122 participants; different groups recruited with varying severity levels.	Slot simulator	Near Miss	NMs had significantly larger SCRs than regular losses. PRPs for NMs were significantly smaller than regular losses.	Unclear
Dores et al., 2020	Portugal	Within subjects experimental design	23 healthy volunteers (10 women)	Slot simulator	Near Miss	An increased P300 amplitude for NMs before the payline vs losses or NMs after the payline. Increased feedback-related negativity (FRN) found for NMs after the payline vs losses and NMs before the payline.	European Network for Problematic Internet Usage grant
Dymond et al., 2014	UK	Between subjects experimental design	FMRI study: 18 PG and Non-PG males of varying severity scores. MEG Study: Two groups: One of 16 PG males, and one of 18 non-PG healthy males	Slot simulator	Near Miss	Using FMRI, NMs recruited similar brain regions to wins. This was positively associated with gambling severity.	Wales Institute of Cognitive Neuroscience
Fryer et al., 2021	USA	Within subjects experimental design	54 healthy adults	Slot simulator	Near Miss	Trial initiation was fastest after a NM vs a win or total loss. Across all outcomes NMs elicited the largest & most phased-synchronised theta responses.	Unclear. Authors declared no COI
Habib and Dixon, 2010	USA	Between subjects experimental design	22 (11 PGs and 11 Non-PGs)	Slot Simulator	Near Miss	NMs uniquely activated brain regions associated with wins for the PG group. Both groups	Unclear

						measured NMs as significantly closer to a win than a loss.	
Hoon et al., 2021	UK	Between subjects experimental design	91 recreational gamblers	Slot simulator	Near Miss	Symbolic generalisation study: Higher closeness to win ratings for reel displays via 'same' vs 'opposite' relations.	Unclear
Kassinove and Schare, 2001	USA	2 x 3 randomised factorial experimental design	180 undergraduate students	Slot simulator	Near Miss	The NM had a significant effect on player persistence in the extinction phase. The 30% NM condition led to greatest persistence vs the 45% and 15% NM conditions.	From student Dissertation
Pisklak et al., 2020	Canada	Experimental: Random assignment to two groups, & then to two treatments (near miss and far miss)	178 students	Slot simulator	Near Miss	Failed to find a reinforcing effect for NMs	Natural Sciences & Engineering Research Council of Canada
Sharman et al., 2015	UK	Experimental: Random assignment to two groups (LDW or no LDWs)	40 healthy students (17 female)	Slot Simulator	Near Miss	NMs before the payline rated as more motivational than those after the payline. Those after were rated as more aversive.	Graduate Scholarship University of Cambridge
Coates and Blaszczynski (2013)	Australia	Within subjects experimental design.	52 students (20 female). Had played a slot machine in last 12 months.	Slot simulator (two that differed on payback percentage & volatility)	Payback Percentage	Participants could easily discriminate products and preferred the machine that offered higher payback (expected return) & volatility (higher win probability per spin)	Unclear

Coates and Blaszczynski (2014)	Australia	Within subjects experimental design	48 undergraduate students	Slot simulator (two that differed in volatility and payback)	Payback Percentage	Participants displayed a greater tendency to discriminate payback, but counterintuitively placed more bets on lower payback machine.	Unclear
Gillis et al., 2008	USA	Between subjects experimental design	12 American Indian and 12 Non-American Indians	Slot Simulator	Payback Percentage	Participants were sensitive to payback percentage, playing more trials and betting more on higher payback machine. Study questions whether individual characteristics predict gambling behaviour.	Unclear
Harrigan and Dixon, 2010	Canada	Within subjects experimental design	2,000 first time players	Simulator	Payback Percentage	Players on highest payback machine had dramatically more spins, winning spins, entries into "bonus mode" & wins of over $125. Those playing the 98% version had much higher peak balance in excess of $1000.	Unclear
Laland et al., 2020	Canada	Experimental: Random assignment to control (conventional 92% return) or experimental (180% return)	70 college students	Slot Simulator	Payback Percentage	Experimental group estimated they had more chances of winning (gamblers will often play more and bet more when they believe this). Conclude that higher rates may be risk for PG.	Unclear: No COI declared by all authors
Leino et al., 2015	Norway	Experimental: Dependent variable = no of bets made.	31,000 gamblers	Online behavioural tracking data of	Payback Percentage	The number of bets is positively associated with payback percentage.	Unclear

		Independent variable = reward characteristics of the game.		VLT's (Slot machines)			
Lucas and Singh, 2011	USA	Unclear	10,000 virtual players	Modified Real Slots set at different payback levels	Payback Percentage	Frequent slot players were not able to detect modest changes in payback percentage over time.	Unclear
Weatherly and Brandt, 2004	USA	Expt 1: Between groups design Expt 2: Within subjects design	Exp 1: 63 college students (34 female). No PGs. Exp 2: 8 students (4 females)	Slot Simulator	Payback Percentage	Gamblers' behaviour did not vary as function of payback percentage	Unclear
Weatherly et al., 2009	USA	Within subjects experimental design	6 non-PG female gamblers	Slot Simulator	Payback Percentage	Players did not always demonstrate preferences for higher paying machine	Unclear
Dixon et al., 2015	Canada	Within subjects experimental design	96 gamblers (44 female). Varied in severity. 31 were moderate risk gamblers, and 19 were PGs.	Slot simulator	Sounds	Sound influenced arousal as measured by Skin conductance and Heart rate. Sound also caused players to significantly overestimate the number of times they won. Majority of players preferred to play slots accompanied with winning sounds.	Ontario Problem Gambling Research Centre
Dixon et al., 2014	Canada	Between subjects experimental	157 participants	Slot simulator	Sounds	In negative sound condition most participants correctly categorised LDWs as losses, & gave high	Ontario Problem Gambling

		design: Allocation to one of three sound-related conditions paired with LDWs.				fidelity win estimates. In standard sound condition a majority miscategorised LDWs as wins.	Research Centre
Scarfe et al., 2021	Canada	Within subjects experimental design	73 undergraduates (63% female). Had played a slot in last 12 months (85% 5 or less times).	Slot simulator	Sounds	Pairing negative sounds with LDWs leads to behaviour change, in that participants PRPs are more loss-like than win-like. Higher fidelity of win estimations. Subjectively reports of flow and positive affect are decreased, and negative affect increased.	Some industry funding (Manitoba Liquor & Lotteries*)
Choliz, 2010	Spain	Within subjects experimental design. 2 conditions: Immediate and delayed reinforcement	10 pathological gamblers	Slot simulator	Speed of Play	When the result appears immediately (after 2 seconds) significantly more games are played than when the result is delayed (10 seconds).	Unclear
Harris et al., 2021	UK	Within subjects repeated measures experimental design. Five speed conditions.	50 regular non-problem gamblers	Simulator	Speed of Play	Response inhibition was significantly worse (impaired) during faster speeds of play. Subjective levels of arousal were significantly increased during faster speeds of play. Valence ratings indicated that as speed increased the enjoyment of the game also increased.	GambleAware*

Linnet et al., 2010	Denmark	Between subjects experimental design: 15 PGs vs 15 non PGs. Played 2 second and 3 second play conditions.	15 pathological gamblers	Slot machine	Speed of Play	PGs had significantly higher measures than non-PGs on time spent gambling, excitement level & desire to play in 2 second condition. In 3 second condition there were no differences in excitement and desire to play again. The number of PGs playing the maximum time (60 mins) was reduced in the 3 second condition, & reward frequency contributed to reduction in time spent gambling.	Danish Agency for Science, Technology & Innovation
Mentzoni et al., 2012	Norway	Within subjects experimental design: Participants played slots across 3 speed conditions.	62 Undergraduate students (31 female).	Slot simulator	Speed of Play	In the high speed condition, at-risk gamblers employed higher bet sizes compared to no-risk gamblers. No overall main effect on mean bet size, evaluated entertainment or illusion of control.	Unclear
Worhunsky and Rogers (2018)	UK	Experimental: Within subjects design	72 Male regular gamblers. Equitable number of no problem, at-risk, and PG profiles.	Slot simulator	Speed of Play	In expt 2 the faster slots were associated with inc spending, greater underestimations of total amount spent, & impaired recall of the no of winning outcomes. Slower machines associated with longer inter-play reaction times, less continued-play spending, & improved recall of total spending and winning outcomes.	National Institute for Drug Abuse (NIDA)

The following summarises the results by characteristic, and focuses on the influence on gambling behaviour, psychobiological effects, and psychological effects.

The Effects of the Jackpot on the Player

The review yielded seven studies relating to the effects of the jackpot on players. All the studies demonstrated that jackpots influence gambling behaviour, both in terms of increasing or decreasing gambling behaviour. Studies mostly reported that jackpot size has an intensifying effect on gambling behaviour. For example, on spend overall (Browne et al., 2015), bet size (Crewe-Brown et al., 2014; Li et al., 2016), and gambling intensity as measured by speed of bets and play persistence (Donaldson et al., 2016), and this may be more intense when the actual jackpot size remains hidden and unknown. Studies that included players' engaging in risky gambling behaviour suggest that these effects may be most pronounced amongst these groups (e.g., Browne et al., 2015; Quilty et al., 2016; Li et al., 2016) however effects are also present amongst novice and recreational players (e.g., Donaldson et al., 2016).

Studies also reported that jackpot size influences psychobiology in terms of increased emotional arousal (Donaldson et al., 2016; Li et al., 2016). Brown et al. (2015) yielded psychological effects, in that participants with cognitions that gambling could change your life preferred jackpot-oriented machines.

Two studies reported a decrease in gambling behaviour. Flepp and Rudisser (2019) showed that players wager less and act more cautiously after hitting a jackpot. Rockliff et al. (2015) showed that after a jackpot expiry message was received that bet speed and losses significantly slowed.

The Effects of Losses Disguised as Wins on the Player

A 'loss disguised as a win' refers to 'winning' an amount which is less than you wagered. For example, you play a £1 stake, and you 'win' 25p. The review yielded 14 studies relating to the effect of losses disguised as wins (LDWs) on players, with only two of these trials showing no effect.

Eleven of the twelve studies reported effects on gambling behaviour. For example, LDWs appear to make players persist in gambling behaviour (Graydon et al., 2021; Graydon, 2018; Harrigan, 2015; Leino, 2016), with evidence that a "sweet spot" of a moderate number of LDWs being important in this, even when on a losing streak. LDWs also appear to influence game selection (Graydon et al., 2017). Harrigan et al. (2011) reported that players utilising the mini-max strategy (betting modest amounts on multiple lines) on multi-line machines experience a greater reinforcement rate due to LDWs, which may help to explain this behaviour.

In terms of psychobiological effects, studies (e.g., Dixon et al., 2018; Dixon et al., 2010) showed that LDWs were treated the same as wins, as measured by pressing the button harder, a proxy for arousal, and by skin conductance amplitudes. Scarfe et al. (2021) reported that players reacted to LDWs like a win when it was paired with a positive sound. When the LDW was paired with a negative sound, players

responded like the losses they are. Lole (2014) compared 'problem gamblers' with non-problem gamblers and found a significantly lower SCR to reward in the problem gamblers, which the authors concluded reflected a hyposensitivity to wins. They said this may reflect abnormalities in incentive processing and could be a biological marker for problem gambling. Arousal patters were the same across groups for LDWs and losses.

Studies also showed psychological effects on players. Different studies showed that LDWs led to overestimations in perceptions of wins (Graydon et al., 2019, 2022; Jensen et al., 2013). According to Jensen et al. (2013) the more LDWs players were exposed to, the greater the win estimates. In addition, players verbally miscategorised LDWs as wins. Sharman et al. (2015) showed that trials with LDWs were experienced as more enjoyable by players, as compared to trials with no LDWs.

There was one negative trial. Sagoe et al. (2018) found that the experimental group (exposed to LDWs) did not differ on total bet size, number of bets placed, and remaining credits after the mandatory phase of the experiment.

The Effects of the Near Miss (NM) on the Player

Near-miss events are situations in which an action yields a negative result but is very close to being successful. For example, in a traditional fruit machine the payline (the relevant row of fruits) may show the first two fruits matching, but the third one is a different fruit. A total of 20 studies considered effects on players of the near miss effect. These will be reported in terms of psychological, behavioural, and psychobiological effects.

In terms of psychological effects, different reports showed that players rated near misses erroneously as closer to wins than to losses (Dixon et al., 2009; Dymond et al., 2014; Belisle et al., 2016). The experience of a NM may depend on context. For example, different studies report that players rate NMs as less pleasant than full losses, but in Sharman et al. (2015) this was after the payline, and in Banks et al., 2018 this was when playing in a 'winning machine' context. Despite these feelings in these contexts, Sharman et al. (2015) reported that NMs are rated as motivational when they appear before the payline, and different studies reported that NMs increase desire to play (Clark et al., 2009; Clark et al., 2013). Billieux et al., (2012) reported on the ability of the NM effect to influence a player's perception of their ability to influence the outcome of chance slot games. They found that skill-oriented gambling cognitions predicted higher subjective ratings of desire to play following NM outcomes, fostering the illusion of control.

In terms of behavioural effects, Kassinove and Schare (2001) found that NMs had a significant effect on play persistence, which was greatest at the 30% NM condition (versus 45% and 15%), indicating that the volume of programmed near misses is important in influencing behaviour. Banks et al. (2018) found that bet size increased after near-misses. Detez et al. (2019) and Fryer et al. (2021) found that there was a faster next spin response after NMs, versus wins or total losses. Belisle and Dixon (2016) found that NMs were more reinforcing than total losses, as measured by the

post-reinforcement pause (PRP). By contrast, Dixon et al. (2012) found that PRPs were significantly smaller than for regular losses, and Pisklak (2020) failed to find a reinforcing effect for NMs.

A total of 12 studies focused on the psychobiological effects of near misses. Many of the studies used different technology (e.g., EEG, fMRI) yet all showed that near misses recruited win-related reward circuitry in the brain (e.g., Alicart et al., 2015; Chase and Clark, 2010; Clark et al., 2009; Dymond et al., 2014; Habib and Dixon, 2010). Dores et al. (2020) found the increase in brain activity came when the near-miss was before the payline, rather than after it. Habib and Dixon (2010) found that near misses uniquely activated brain regions associated with wins for the problem gambler group. Similarly, Dymond et al. (2014) found the recruitment of win related brain regions was positively associated with gambling severity. Chase and Clark (2010) also found that gambling severity predicted a greater response, indicating that near-misses may enhance dopamine transmission in disordered gamblers.

Studies also showed differential effects for near-misses compared to total losses. Alicart et al. (2015) found larger power increases for wins and near-misses. A range of studies showed that compared to full misses, NMs elicited electrodermal increases and greater heart rate acceleration (Clark et al., 2012; Detez et al., 2019; Clark et al., 2013). Similarly, significantly more arousal was found by measuring skin conductance responses following near-misses compared to regular losses (e.g. Dixon et al., 2011; Dixon et al., 2012).

The Effects of the Payback Percentage on the Player

The payback percentage refers to how much money, on average, will be returned to you over the lifetime of a slot machine. For example, if a slot machine brings in £1m and pays out £100,000 then it has a 90% payback percentage.

The review yielded 9 studies relating to the influence of a machine's payback percentage on player behaviour. Five studies showed that it had a positive influence on player behaviour. One study provided a mixture of positive and negative results, and 3 studies yielded negative results.

For example, Coates and Blaszczynski (2013, 2014) reported that players can easily discriminate between machines at different payback levels, preferring machines with higher payback percentages. Weatherly et al. (2009) on the other hand stated that players did not always demonstrate preferences for the higher payback machine.

Five of the nine studies reported a significant effect on player behaviour. For example, on machines with higher payback percentages players play more, bet more, and win more (Gillis et al., 2008; Harrigan and Dixon, 2010; Leino et al., 2015). The latter study used real world data of 31,000 gamblers. However, Weatherly and Brandt (2004) reported that gamblers behaviour did not vary as a function of payback percentage.

The Effects of Sounds on the Player

Three studies were included in the review relating to the effect of using sound within slot machines on players.

Two studies yielded similar findings and relate to how sound can be used to distort perceptions, and influence behaviour (Dixon et al., 2014; Scarfe et al., 2021). Both studies found that by pairing negative sounds with LDWs players experience them accurately i.e., as loss-like. Players accurately categorise LDWs as losses and gave high fidelity win estimates. However, when positive sounds are paired with LDWs (which is how slot machines are used in the real world), a majority of players miscategorised LDWs as wins.

Dixon et al. (2015), studying 96 players of varying risk levels, found that the majority preferred slot machines that were accompanied by winning sounds. Importantly, sound influenced arousal, as measured by skin conductance and heart rate. Sound also caused players to significantly overestimate the number of times they won.

The Effect of Speed of Play on the Player

A total of 5 studies were included in the review which related to the effect of speed of play on players. Studies reported differences in gambling behaviour, and these tended to be mediated by gambling severity status.

For example, studies reported that significantly more games are played as speed increased (Choliz, 2010), response inhibition is more impaired, subjective levels of arousal are significantly increased, and valence ratings indicate that as speed is increased the engagement of the game also increases (Harris et al., 2021). Linnet et al. (2021) found that in the faster speed condition problem gamblers spent significantly more time gambling, experienced significantly higher excitement and desire to play levels. Mentzoni et al. (2012) found that in the high-speed condition 'at-risk' gamblers employed higher bet sizes compared to 'no-risk' gamblers.

However, Worhunsky (2018) didn't find a mediating effect for severity status. Gambling behaviour was altered irrespective of PGSI score. Faster slots were associated with increased spending, greater underestimates of total spend, and improved recall of the number of winning outcomes experienced. Slower machines were associated with slower reaction times, less continued play spending, and improved recall of total spending and winning outcomes.

Discussion

This systematic review aimed to examine the effects of structural characteristics within slot machines on players, utilising six common characteristics chosen following scoping searches of the literature. The structural characteristics under review were the jackpot (yielding 7 studies), losses disguised as wins (14), the near miss effect (20), sounds (3), payback percentage (9), and speed of play (5). The effects derived from these studies tended to be psychological (e.g., effects on thoughts and feelings), behavioural (e.g., effects on gambling behaviour), and psychobiological (e.g., effects on brain activity or physiological arousal).

These studies examined individual structural characteristics using a diversity of methods on different populations including healthy, at risk, and problem gamblers. Some studies used genuine slot machines and data from real world gambling environments, whereas many pragmatically used simulated slot machines in a

laboratory environment. Attempting to synthesise this data into a coherent narrative poses some challenges.

In brief, each characteristic influences players. Jackpot size seems to influence overall spend, prolonging and intensifying play, and increasing physiological arousal. Effects may be more pronounced amongst those experiencing gambling problems, and when the jackpot is hidden (e.g., Donaldson et al., 2016; Li et al., 2016). For losses disguised as wins these tend to influence play persistence, they are experienced more like wins than the losses they are, they increase physiological arousal, and they lead to overestimations of wins (e.g., Graydon et al., 2021; Dixon et al., 2018). For near-misses, evidence shows they have an effect on play persistence, bet size, faster spin responses, and are experienced as more reinforcing than total losses (e.g., Kassinove and Schare, 2001; Detez et al., 2019). They recruit win-related brain regions and increase physiological arousal (e.g., Dymond et al., 2014). Positive sounds, when used with LDWs, distort perceptions and lead to greater reinforcement and physiological arousal (e.g., Dixon et al., 2015). In terms of speed of play, on the most rapid machines speed is associated with more games played, prolonging play, increasing bet sizes, more physiological arousal and desire to play, and response inhibition is impaired (e.g., Choliz, 2010; Linnet et al., 2021). There was some mixed evidence on payback percentage, although most studies showed that a high payback percentage leads to prolonged play and betting more (Gillis et al., 2008; Harrigan and Dixon, 2010; Leino et al., 2015).

Taken together, these studies overall show that the chosen structural characteristics have effects on players across psychological, behavioural, and behavioural domains, lending further support to previous findings (e.g., Dow-Schull 2012, Barton et al., 2017). They suggest that structural characteristics are important in increasing gambling behaviour, prolonging play, intensifying play, persisting, distorting perceptions in favour of continued gambling, increasing physiological arousal, and recruiting brain regions responsible for reward learning and motivation. Slot machines are pre-programmed to ensure the house wins, and the longer a player gambles the more they will lose. So, evidence suggests that structural characteristics are important in defying the usual laws of behaviour where punishment (in this case, losses) reduces and extinguishes behaviour. Apart from the payback percentage, which had mixed evidence of influencing risky gambling behaviour, the other structural characteristics have clear evidence of influencing harmful gambling behaviour. The evidence suggests that these characteristics warrant regulatory attention to make slot machines safer:

- Losses disguised as wins
- Programmed in near misses
- Speed of play
- Reinforcing sounds
- Jackpot

There was some evidence that structural characteristics may be mediated by gambling severity status (e.g., Linnet et al., 2021; Mentzoni, 2012; Dymond et al., 2014). However, many studies used students and healthy participants, and found

that structural characteristics have effects on players irrespective of risk status (e.g., Harrigan and Dixon, 2010; Harris et al., 2021; Sharman et al., 2015). This is a significant finding, suggesting that the modern slot machine has been engineered in such a way it influences our universal reward pathways and decision making. Ross (2020) argues that slot machines have been deliberately engineered to exploit our natural biological vulnerability. He goes on to conclude, "each successive short generation of electronic gaming machine (EGM) technology has been engineered to make the player's experience more addictive. Empathy with addicts can indeed be based partly on viewing them as victims – not of their brains, but of other, predatory, humans." (Ross, 2020, p7).

Taken together these results suggest that players remain motivated to persist and even intensify their play, in the face of increasing losses. This has implications in terms of regulation and legislation. The current Gambling Act (2005) includes two licensing objectives: ensuring that gambling is conducted in a fair and open way and protecting children and other vulnerable persons from being harmed or exploited by gambling. These findings raise questions related to both. For example, are players appropriately informed? Are gambling machines fair? The results suggest that slot machines contain features that exploit players. The data on problem gambling rates of players who regularly use these machines also lends weight to this.

These results also lend some support to the way slot machines could be regulated. Just as these structural characteristics can be used by the gambling industry to prolong and intensify play, these characteristics could be modified to examine their effect on player safety. For example, Rockliff et al. (2015) showed that after a jackpot expiry message was received that bet speed and losses significantly slowed. In losses disguised as wins, Scarfe et al. (2021) reported that when the LDW was paired with a negative sound, players responded like the losses they are. The findings of Kassinove and Schare (2001) may serve regulators to reflect on whether near misses should be programmed in above chance, and if so, their evidence suggests the quantity of these matters in the extent to which they motivate players. The research on speed of play indicates that slowing down reel spin could have a positive effect on player safety (e.g.Worhunsky, 2018). In doing so, player safety could have a significant positive impact on crime. There is a basis here, to work towards a slot machine that is significantly safer than those currently on the market. Slowing speeds, implementing stake limits, removing LDWs and programmed in near misses, implementing mandatory time outs, and limiting prizes could potentially assist in this venture.

There were limitations to the studies included in this review. Most studies (50 of the 58) used artificial settings (a laboratory) and traded ecological validity with exerting greater experimental control within the studies. In addition, these studies tended to use simulated slot machines, rather than real ones. Often these simulated slots were simplified versions of slots found online or in casinos. For example, a single reel versus the modern multiline ones, and a single structural characteristic at play. Modern machines are immersive with an array of structural characteristics, and typically situated in environments which present additional risks. Sample populations also varied in the studies. Whereas both healthy and those with gambling problems

were used across studies, most of the studies used pragmatic samples of university students, which has implications for comparability with the gambling population. However, these healthy samples also show that structural characteristics exert effects irrespective of gambling status. In addition, most of these studies participants did not wager with their own money, which may influence behaviour, arousal etc. Researchers also shadowed participants during tasks, even interrupting them, which also has implications for the ecological validity of the studies. A small number of studies used situation vignettes rather than observing slot play, and many studies used self-report. However, most studies utilised self-report in combination with an array of observational and experimental findings.

Another key limitation is that a critical appraisal or quality checklist was not used for the studies, due to the variability in study designs. However, an adaptation to an existing tool could be employed in future research and agreed amongst the authors. Such a tool might want to take account of selection bias. For example, what type of participants are recruited and how is their gambling status measured (healthy, high-risk gamblers etc). Performance bias could be checked in terms of the behaviour of the researcher during the task (e.g. interrupting, observing in person), and whether participants used their own money or not. Validity could be checked by looking at whether a simulated slot was used (and whether it was akin to a modern slot machine), and how participants were allocated to groups. Questions such as 'is the measurement tool valid for the outcome it is designed to measure?' and 'are the findings generalisable to real settings?' could aid the process. Importantly studies should be evaluated based on the origin of funding, given the risk of bias of industry funded studies.

Despite these limitations this review is the first to systematically review an array of structural characteristics of slot machines. Future research could help to achieve a much safer slot machine, and thereby removing its label as the highest risk gambling product on the market. The slot machine contains so many different features that while this review provides support for individual structural characteristics being associated with arousal, motivation and play persistence, it isn't clear how these characteristics combine or their collective effect on behaviour. Future research could examine structural characteristics in combination, and the relative risk of each characteristic, as well as in combination.

The available evidence shows that they influence gambling behaviour and gambling harm and are worthy of greater focus in future research. The findings have implications for forensic practice, in that psychologists acting as expert witnesses can present informative details about the addictive nature of gambling products in court proceedings. The findings also have implications for policymakers, in that these same characteristics can be modified to reduce harm, and by restricting exposure and availability to a harmful product. These findings could help policymakers to understand that the modern slot machine has been engineered to exploit our universal natural vulnerabilities i.e., they exert influence on all players, not just problem gamblers. This lends support to Dow Schull's (2012) thesis that slot machines are 'addictive by design'. Changes in regulation could also significantly reduce crime rates associated with the playing of these products.

Overall Discussion

Increasingly, gambling disorder is being seen as a significant criminogenic factor (Smith and Simpson, 2014). Yet the criminal justice system appears to lag behind the traditional addictive disorders in its understanding of, and response to, gambling-related offending. In this context this research aimed to explore the features which may have contributed to impaired control of, and responsibility for, financially based crimes associated with gambling disorder. To this end it explored participant perceptions of the role of commercial products and practices, the regulatory framework, and gambling disorder, in committing these crimes. In the case of the systematic review, it examined the role of common design features of slot machines, in influencing behaviour. In doing so these studies examined the elements which may contribute to mitigation in court proceedings where, to date, gamblers have been vulnerable to the imposition of significant penalties, including imprisonment.

The combination of the systematic review and the qualitative study yielded findings that may contribute to a case for mitigation, based on diminished rationality and responsibility. Namely that:

- Gambling products can exert such influence that they affect decision-making, agency, cognition, rationality, and self-control. They recruit the reward centres of the brain to a profound degree, boosting craving, and diminishing the exercising of self-control. This is achieved independently of player characteristics.
- Placing an already addictive product online with such ease of access and availability adds to the risk of addiction and crime.
- The experience of gambling disorder suggests that behaviour transitions from conscious processing to being more compulsive, with greater automatic processing influencing individuals. While agency isn't entirely lost, refraining from the behaviour becomes extremely difficult.
- A gambling disorder profoundly alters a person's personality and behaviour in the direction of maintaining addictive behaviour and increasing the likelihood of criminal behaviour. Instructively, upon abstinence the persons original (non-criminal) personality and core values return.
- The process of a gambling disorder takes individuals from a phase of positive reinforcement (e.g. early big win, regular intermittent wins) to a losing phase, and later a desperation phase. Crimes were committed in the context of a severe gambling disorder, the exhaustion of personal finances, and the presentation of enormous temptation in the shape of accessible, plentiful funds, and a poor audit trail. While not removing responsibility for the offences, this extraordinary combination of factors lends itself to a deeper understanding of such offences, and a greater sense of compassion for the perpetrator.
- Commercial practices, such as concentrating targeted marketing and loyalty schemes at those experiencing the greatest losses could be argued to be exploiting a psychiatric disorder. Rather than using data to protect players, operators appear to be using data to accelerate losses and raising the risk of criminal behaviour.

- Laws and regulations are in place to protect players, minimise harm, and in doing so reduce the likelihood of criminal behaviour. Operators appear to be willing to disregard gambling laws and regulations, and in doing so are unwittingly contributing to these offences.

These outcomes are important because, until now, the focus of the courts has been on the crime and sentencing guidelines (see Brooks & Blaszczynski, 2011), within an overall frame of individual responsibility. These findings suggest that it may be worthwhile challenging this framing, not to negate individual factors nor any responsibility on the part of the perpetrator, but to provide the courts with evidence-based mitigation that would allow the courts to make more informed decisions. This would consider a full analysis of the individual and contextual factors. This could result in more compassion and greater flexibility in responding to these cases. For example, diverting those accused away from prison using community treatment orders. Greater use of the expert witness in these court cases, as well as existing mental health treatment orders or developing specific gambling treatment orders, may aid this process. Should a defendant successfully complete such an order one possible model could be to have the charges dismissed, and there would be no criminal record.

Participants in this study challenge popular notions of people with addictions who commit crimes to fund their activity. A glance at media stories of gamblers who commit financially based crimes tend to be framed in terms of a dysfunctional person doing bad things. The courts could be said to be responding in kind with a punitive approach based not just on the law but reflecting public perceptions of addiction. The reality is more nuanced. These participants, rather than enjoying the proceeds of crime, were suffering with mental anguish and many came close to taking their own lives. They were clearly desperate. While we have had a national conversation about wellbeing and mental health more generally, we are yet to have one about addiction. Perhaps what might influence the judiciary and our laws above all else, is the knowledge that there is compassion for those suffering from addiction by the public at large.

The adoption of a government led public health framework for gambling harm would also assist in more contextual framing of gambling harms (Livingstone and Rintoul, 2020). The traditional use of the biomedical model in our understanding of disorders ought to be challenged, with greater research resources provided for a more holistic understanding of these harms and crimes. To date operator interests have benefitted from research being funded via a charity dependent on industry funding, called GambleAware. The government is set to introduce a statutory levy on operators, with funds for research shifting to an independent statutory levy board for allocation to the UK research councils (Department for Culture, Media and Sport, 2023). This is likely to lead to a welcome programme of policy relevant research, as well as broadening our understanding of contextual factors. This research could lead to greater reform of gambling laws, and reduced rates of gambling related crime.

The findings may also have implications for the law itself. Participants experiences of a gambling disorder, aided by commercial actors with a disregard for the law and

regulations, could see a challenge to the notion that this diagnosis is insufficient in shifting responsibility away from a defendant. There is already a solution in Anglo-American law, of Guilty but Partially Responsible, but this is limited to homicide to reduce murder to manslaughter. Could offences in the context of a profound addiction eventually be brought under this type of ruling? Morse (2003) presents his case for 'guilty but partially responsible' and these findings would appear to meet his criteria for a change in how these cases are ultimately judged. As such decisions are discretionary, it would need to be accompanied by training of the judiciary in gambling disorder, its determinants, and consequences.

The argument advanced by these findings would be for the courts to consider the contribution of the gambling operators in prompting, maintaining, and exacerbating the gambling disorder, and the extent to which those with gambling disorder are exploited or victimised. According to Dow Schull (2012) just as there are so-called problem gamblers, there are problem products, problem gambling environments, and problem business practices. The process of gambling disorder in these cases revealed a causal chain that extended beyond any vulnerability of participants to the material contribution of the gambling operators, as well as a lax regulatory framework and lack of compliance by operators. What is the answer here? Firstly, the expert witness can furnish the court with the failings in complying with laws and regulations by operators as s/he presents the case for mitigation. Secondly, each of these cases seems to represent a failure in existing laws and regulations. Could the 'subject access request data' of gambling transactions (SARS), used as part of the case for mitigation by the expert witness and defence barristers, be submitted to the Gambling Commission to consider penalties and licence revocations against operators?

The findings are important in the broader context of policy and reform of our existing gambling laws. There are consistent findings that the current laws and regulations are disregarded (see Gambling Commission, 2023), which raises questions about whether the resources of the gambling commission can keep check with sophisticated modern operators. It also raises questions about the tendency to adopt a model of self-regulation rather than more robust, prescribed, and hands-on methods by the regulator. Operators are clearly motivated by profit, rather than player protection, and indeed the latter clashes with commercial interest. One solution could be to shift contingencies from profit to player protection, such as a statutory duty of care. This could mean that operators, or senior executives of gambling operators, could find themselves in the dock.

There are many implications for policy and reform. These findings suggest closer attention ought to be paid to the regulation of high-risk products and environments, as well as the broader model of disproportionately relying on the heaviest losers for revenue. If the government can render the industry operating model to be one for recreational gambling where consumers can only gamble within their means, it could have a dramatic impact on the type of offending considered in this study.

One of the common experiences of participants was that the criminal justice system, from the police to the judiciary to the prison and probation service, are currently ill-

equipped to respond to gambling addiction and associated crimes. Possible considerations as to how the criminal justice can better respond to gambling-related crime could involve: police training and awareness in the identification and understanding of gambling harm, and signposting into support and treatment. So called 'arrest-referral' schemes exist for other addictions. Another possible improvement could be the use of expert witnesses in court cases of gambling disorder and associated crime. They are well placed to provide the case for mitigating factors using clinical and gambling related data. Greater awareness and training for the judiciary may lead to more compassionate hearings and flexible sentencing. The introduction of prison diversion treatment orders for gambling related crimes would assist with this flexibility. Screening for gambling harm during prison induction could ensure more effective support and sentence planning in prison. Finally, the introduction of evidence-based gambling treatment and support across the prison and probation service could reduce relapse and re-offending rates. A foundation for a better response by the criminal justice system for gambling related crime has recently been outlined (Howard League for Penal Reform, 2023), and will hopefully lead to reform. The types of changes outlined above are unlikely based on this study alone due to its limited size and scope. More research is clearly needed to build on what is presented here.

In terms of future research and focus, a model of gambling addiction and related crime which is comprehensive and integrates individual, environmental, commercial, political, and regulatory factors is needed. The medical model is no longer fit for purpose. Future research could focus on the idea of 'guilty but partially responsible' and test whether cases of gambling disorder related offences meet the criteria for this. Assessing diminished rationality and self-control appear to present particular research challenges and for experts presenting mitigation in court.

The two studies here make a unique contribution to the understanding of financially based crimes committed by those with a gambling disorder. It will hopefully lead to a greater focus on these crimes, the determinants of them, and a greater focus on preventing such severe harm in the first place. For those cases which reach the courts, this study provides a useful template for the case for mitigation that could lead to greater compassion and understanding by courts, greater flexibility in sentencing options, custody diversion orders, and gambling treatment becoming commonplace in criminal justice settings.

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Chapter Three:

Individual Learning Plan: Becoming a Researcher Practitioner

Individual Learning Plan

NTU

DPsych in Forensic Psychology

'Becoming a researching practitioner'

This Learning Plan is for you – it is to assist in developing your competence and a practitioner researching and forensic psychologist. **It should focus on the interplay between researcher and practitioner in forensic psychology.** The course learning outcomes are outlined on following page and how these link to the Vitae framework – this framework provides detail about how these can be demonstrated more generally – the course learning outcomes should be used to guide you about how this can applied to the standards required for a researching practitioner in forensic psychology.

Name	Matthew Gaskell
Student Number	N0773621

Supervision Team	Jens Bender Rosie Kitson-Boyce Sean Cowlishaw

Date of Admission: October 2017 (first admission); October 2020 (this project)
Date of Thesis Proposal: May 2021
Date of approval for Annual Review End Year 1: October 2021
Date of approval for Interim Review Year 2: October 2022
Date of Final Submission: October 2023

DPsych in Forensic Psychology

Course Learning Outcomes

Knowledge and Understanding	Researcher Development Framework
Display critical investigation and evaluation of a topic from an advanced body of literature relevant to forensic psychology practice.	A2
Display an independent and original contribution to forensic psychology knowledge to inform professional practice.	A2 A3
Critically reflect on the acquisition of new knowledge to inform forensic psychology practice.	A3
Draw on practice experience and knowledge to inform research at the current limits of the forensic psychology field.	A1 A2
Display advanced understanding of research methods with its application to forensic psychology practice.	A1
Systematically acquire an advanced body of knowledge, which is at the forefront of professional forensic psychology practice	A1
Personal skills, Qualities and Attributes	
Conceptualise, design and implement appropriate applied research methodologies and adjust project design in light of unforeseen problems or contradictions	A1 C2
Make informed judgements on the results of research and communicate ideas and conclusions clearly and effectively to specialist and non-specialist audiences	A3 D2
Generate, interpret and apply new knowledge, techniques and skills in the forensic psychology professional field	A1 A2
Exercise personal responsibility and largely autonomous initiative in complex and unpredictable situations in a professional environment, with a high level of responsibility for others.	C2
Reflection on personal developments and lessons learned through the completion of doctoral applied research.	B1 B3
Reflect on the developments on own practice and the wider practice and future of forensic psychology.	A1 B3
Reflection on the contribution provided as an active member of the wider professional forensic psychology community and links with both professional and academic communities.	B1 B3 C1

Competence Development Record

Please provide brief information about how you developed the competences in relation to becoming a researching practitioner. For example, any training events or conferences you attended, self-directed reading, reflections in supervision, observation of others.

Activity	Date(s)	RDF competence developed
Using Refworks to Manage References (NTU Webinar)	27/10/2020	A1, A2, C2
Managing your Time & Your Doctoral Research	19/11/2020	B2
Conducting a literature search for a systematic review (NTU Webinar)	27/11/2020	A1, A2, C2
Systematic Review Searching and Organising on Refworks (Session with Librarian)	1/2/2022	A1, A2, C2
Common Challenges in Thematic Analysis and How to Avoid Them: A Webinar by Braun and Clarke	19/9/2022	A1, C2
Reflexive Thematic Analysis webinar by Lisa Trainer (University of British Columbia)	19/9/2022	A1, C2
Reading several papers on Reflexive Thematic Analysis	June-Dec 2022	A1, A2, A3
Topic Advisor on NICE Guidelines for Harmful Gambling	Dec 2021 - Date	A1, A2, A3, B1,B3,C2,D1
Evidence to Northern Inquiry into Gambling Harm	26/9/2022 & 13/3/2023	A1, A2, D2, D3
Teaching annually at University of Leeds, Sheffield, Newcastle, Hull, and Teeside in Gambling Addiction on Doctorate in Clinical Psychology	2020-to date	A1, A2, D2, D3
International Think Tank on Gambling Research, Policy & Practice	26/27 June 2023	A1, B3, D1, D2, D3
Current Advances in Gambling Research Conference	28/29 June 2023	A1, B3
Culture, Media and Sport Select Committee Evidence	18/7/2023	D1. D2, D3

Field Supervisor for a Doctorate in Clinical Psychology Thesis on CBT for Gambling Addiction	2021-2023	A1, C1, C2, D1
Supervision for DPsych at NTU	2020-2023	A1, A2, A3

Domain A: Knowledge and Intellectual Abilities

Application Stage

Summary of Evidence

A1. In terms of subject knowledge, I have acquired a great deal over the years as a theorist, lecturer, and practitioner. This has included a great deal in terms of theory related to addiction. I have taught a great deal in addiction, from undergraduate to Doctoral and medical training programmes. I have read widely, worked with a range of experts in the field, and applied this theory in practice and in running clinical services for many years. I have appreciated the need to critically evaluate this literature, appreciating the wide range of explanatory frameworks available. Addiction is often explained in a reductionist manner, particularly by using a disease or medical model, which can serve vested interests. Alternatively, it has been explained as a choice and a moral failing, which has brought equally reductionist and stigmatising approaches to understanding and treating addiction. I have come to appreciate that addiction operates on various levels (ecological, psychological, social, environmental, societal, cultural, neurobiological), and this has been expanded recently to integrate the commercial determinants of harm, and the role of legislation and regulation in understanding and responding to addiction related harm.

The current study is interested in using this theoretical and clinical knowledge to gain a greater understanding of gambling addiction throughout the criminal justice system. The way we have understood addiction (e.g., as a moral failing) appears to contribute to the way people are treated within the system, and this is very different to how we consider mitigation in court by those with other mental health disorders. There are no current prison diversion schemes in the UK for gambling related crimes, as there are with alcohol and drug use disorders. So, I begin this study with an appreciation of how my research could have an impact on real world affairs.

I feel that I still have much to learn in this area, particularly in terms of qualitative methods. I am interested in how those with lived experience can share their experiences of gambling addiction, how it unfolds and constrains one's choices and impacts on behaviour. By using my experience and knowledge I am hoping to use qualitative methods to co-produce a deeper understanding of gambling addiction and how this might act as mitigation in criminal prosecutions. Apart from academic lectures on qualitative methods and reading several papers with these designs, my start out knowledge is modest.

I have knowledge in terms of literature searching and making best use of university electronic resources. I have read and taken workshops to do this before. As a university lecturer I have marked literature reviews before and have a solid understanding of these. I can evaluate academic research to a reasonable degree, and I have used tools such as the CASP tools before to do so. I have undertaken a systematic review before, so the method is one that I have some understanding of. I have a modest understanding of using RefWorks and this is something I am keen to develop so my work can be more efficient.

Using confidential data is common for me in my work and ensuring data security and governance. I oversee a research and evaluation arm of our clinical service, so we routinely collect data, analyse it, and work with academic partners to disseminate it.

I am fortunate in that I have access to expertise at NTU in terms of the librarian, my supervision team, my fellow students and lecturers, and a range of experts nationally and internationally in my work network.

As a lecturer/practitioner for several years I can communicate appropriately within an academic context.

This can be built upon in the workshops at NTU and my reading and supervision.

A2. I have done critical reflection in my academic training, teaching, and applied work. I have written book chapters, I have completed post-graduate academic training which included critical reflection, and I have taught students and marked academic essays and case studies involving critical reflection. I have run a journal club at work for many years. I can synthesise and evaluate documents and reports and assess the quality of research. I have been able to formulate basic research questions and hypotheses, but recognise I need more experience in this.

A3. I have always had an enquiring mind and been self-motivated. I read a lot to acquire knowledge and I am generally self-directed. I have mostly worked on my own rather than part of a team and these skills have been very useful. I tend to draw upon the expertise of others and then reflect on this and synthesise it with my own reading. My last two roles (spreading across 18 years) have meant leading on large projects and clinical services, so I have always had to be curious, innovative, and to expose my ideas to a critical audience.

Current RDF Phase

A1 Knowledge Base   0 1 **2** 3 4 5
A2 Cognitive Abilities   0 1 **2** 3 4 5
A3 Creativity   0 1 **2** 3 4 5

Vitae

Domain	Phase required
A1	1+
A2	1+
A3	1+

Needs and Actions required (to be transferred to ILP)

- Library assistance: Literature searching using NTU databases and electronic system
- To get my literature base right up to date for my introduction and methodology.
- To gain knowledge of qualitative methods which allow the co-construction of data with participants.
- To update on literature on game design for my systematic review
- To attend the qualitative research methodology classes to update my knowledge on the relevant approach I will be using. To read to complement this learning and seek supervision.

Interim Review

Summary of Evidence

I have developed my understanding of the literature underpinning the introduction and rationale behind the thesis. There are a range of theoretical models and perspectives on addiction, which poses challenges in terms of synthesising a coherent argument relating to gambling addiction and the impact on decision making to commit crime. I have spoken to some leading authors in the field as well as read and synthesised literature. The neurobiological literature (typically espoused by psychiatry) tends to focus on brain disease and pathology, whereas the psychological literature tends to focus on reinforcement learning. The challenge is to synthesise these perspectives and show how psychological learning processes and decision making (e.g., value-based decision making) is reflected in neural processes. They attempt to describe the transition from goal-directed to compulsive behaviour. The extent to which these impact on and impair the decision to commit crime is the focus of the thesis. This is helping to develop my synthesising and critical thinking skills.

I have also been busy strengthening my knowledge of game design and the structural characteristics of gambling products. There is a decent literature base on this, particularly for slot machines, and so it should provide the basis of a good systematic review. The complication, which I am working through is how to get the method right as there are so many different structural characteristics to review. So the learning is to probably do a mini review first and select the ones with the most support. I have also done a few talks on game design in my work which has helped me to develop my understanding. I have completed the NTU webinar on literature searching for a systematic review.

In terms of methodology for the thesis I have developed my understanding of qualitative methods (attended NTU workshop) and how I can apply this to the thesis. I have read different methods, watched lectures and YouTube clips, and spoken to qualitative researchers, including some in the field of gambling. Through discussion and reflection in supervision I decided to use 'Constructivist Grounded Theory'. The benefit for me and the thesis is that rather than only relying on the interviewees perspective it is a co-produced model where I can also bring in my experience and knowledge of the key processes. The combination of the two should hopefully bring richer data. The ability to have an evolving interview schedule is also a benefit.

I have also developed my knowledge of the ethics of using video recorded remote interviews. The pandemic will mean that interviews are completed remotely, and this has meant some new learning in terms of keeping the recordings and transcripts secure. The ethics submission has been submitted.

Current Phase	
A1 Knowledge Base	0 1 2 **3** 4 5
A2 Cognitive Abilities	0 1 2 **3** 4 5
A3 Creativity	0 1 2 **3** 4 5

Needs & Actions (ILP updated)

- To develop systematic review skills (use acquired books and NTU workshop material) and progress the review

• To complete the data management plan and project approval
Reflections The ethics submission was very helpful as it meant I could outline the research aims and the thesis, outline the theoretical underpinnings of the thesis, think through the sampling and methodology and the ethical considerations associated with remote research. The key, as always, is fitting in the study into a busy work and family life. The research is on track, but this is always a challenge. I enjoy the knowledge aspect as the thesis sits within an area that I enjoy within my work.

Annual Review

Summary of Progress

There have been several practical tasks to do since the last review, such as the project proposal and data management plan. The project proposal has helped me to be more focused on key areas of the project such as research aims, concisely presenting the arguments and theoretical underpinnings, and the method of course. The data management plan has been useful as it has allowed me to focus on a range of technical and ethical problems relating to doing the interviews remotely …. Confidentiality, safeguarding participants wellbeing, and a host of IT related learning in terms of the security of the video interviews, transcripts etc – made trickier by working remotely and primarily on an NHS or home PC.

The topic advisor has raised the issue of empirical data on the structural characteristics of products may be lacking. So, the systematic review will be important in terms of scoping searches. This all helps in terms of assisting me as a researcher practitioner – it is the empirical research that matters.

I have continued to progress with my reading of background literature to increase my knowledge of the topic of the thesis. I have a large collection of papers and notes, and perhaps I should park this now while I focus on driving the research forward.

Current Phase

A1 Knowledge Base   0 1 2 3 **4** 5
A2 Cognitive Abilities   0 1 2 **3** 4 5
A3 Creativity   0 1 2 **3** 4 5

Reflections

I feel that my knowledge base is more than good enough for the introduction and for the theoretical arguments, and for the topic of the systematic review.

There is less knowledge about the qualitative method, but I feel that I have enough to proceed and the trial error of doing the research, and the support of supervision, feels to me like the best way to move forward now. There is only so much reading you can do without having done this kind of research.

Needs & Actions (ILP updated)
To proceed with the interviews and learn under supervision To complete scoping searches for the systematic review to check there are enough papers

Interim Review Year 2

Summary of Progress

Knowledge of the systematic review continues to develop. The search has shown that while there are a variety of review papers on 'structural characteristics' of slot machines, not all these characteristics have been robustly tested within experimental designs. So, the searching stage is now complete, and the papers are all organised within RefWorks, ready for data extraction.

For the main thesis I have moved forward and collected all of my data. I have completed 13 qualitative interviews. So, this has included all the research governance around the interviews (data management etc), as well as conducting the interviews themselves online. I completed the interviews during an annual leave break at work. As a consequence of collecting so much data in one stage it was felt that Constructivist Grounded Theory would not be the best fit for my data, as that requires reflection in steps as you proceed through the interviews. So, interviews would need to be conducted in stages. Considering I had collected my data in one stage and the data was of good quality, it was felt that 'reflexive grounded theory' would fit the data and the method best of all. This would still enable me to apply my knowledge and reflections, but after gathering the data.

Within my working life I recently did an evidence session for the Northern Ireland Parliamentarians on Slot Machine gambling, so I was able to disseminate some of the learning from the systematic review and contribute to policy. This involved having to critically evaluate the literature, analysing available data and conveying it to the audience.

So, I am on schedule to have my data analysed and my review completed in order to qualify for the 'write up' stage from October 2022.

Current Phase		
A1	Knowledge Base	0 1 2 3 **4** 5
A2	Cognitive Abilities	0 1 2 3 **4** 5
A3	Creativity	0 1 2 **3** 4 5

Reflections

I have learned that there are review papers, opinion papers, and grey literature on slot machine characteristics. These have been influential in the field. However, very few of these characteristics have been robustly tested within experimental research designs. Some have been tested repeatedly, some moderately, some not at all it seems. The review will be important in terms of focusing on those subjected to experimental designs and peer review. As a more naïve researcher I may have read these review papers and taken the findings at face value. I can now use this knowledge and share it in my field.

The other learning, as far as the review is concerned is the importance of knowing how to search to pick up all the relevant literature, across different databases. I had a very fruitful meeting with the Librarian

who provided personalised learning relating to my review, and she was able to show me how to search for so many different characteristics across different databases within the same search field.

Completing my research interviews feels like a breakthrough and I know have my data to analyse. The interviews went extremely well, and I can already see many themes emerging. It was a test of my interviewing skill, and quite different from clinical interviews. It was sometimes difficult to keep my questions open and to stay focused on the interview schedule, as there was an urge to want to enquire more from a clinical perspective. I also discovered how difficult it is for participants to describe the volitional or involuntary nature of addiction. This is a finding in itself.

Within the supervision team we also decided to switch the qualitative methodology, as I had already collected a strong bank of data and done 'enough' interviews. On reflection I hadn't structured my interviews in line with the Constructivist Grounded Theory approach. There is little detailed information available with this method and this was an oversight. I had organised annual leave to focus exclusively on the interviews. Knowing myself I knew that I would struggle to do this while working full time and it would be more likely to be successful by clearing my schedule and having no distractions from this important task. So, we discussed this in supervision and we agreed that I could still apply reflection and knowledge into the method by adopting the 'reflexive grounded theory'. The switch turned out to be relatively straightforward, and there were more papers and guidance for a new researcher to follow than had been the case with CGT. I will keep CGT in mind for the future, as the practice of continually reflecting on interviews and amending the interview schedule in light of evolving interviews, is a good one. This method would work well with a co-author where you can reflect together.

Needs & Actions (ILP updated)

To complete the transcribing of the interviews and to explore preliminary themes in preparation for supervision.

To complete data extraction for the systematic review and continue to progress from there.

Domain A: Final Submission

Vitae
Domain	Phase required
A1	2+
A2	2+
A3	2+

Summary of Progress

I have immersed myself in my data. I have a large dataset of 30,000 words of participant extracts. I have carefully followed the method of 'Reflexive Thematic Analysis'. This is my first significant experience with qualitative research, so I have immersed myself in the theoretical underpinnings of the method and its principles. I have read papers describing the method and watched videos and lectures about it. I have read papers that have used this method. I have been carefully applying the method as I systematically process the data and follow the necessary steps. A clear thematic pattern has emerged which has to the potential to tell a powerful and coherent story, anchored to my research aims. The initial list of themes has been changed as themes are discarded or merged into related themes. Participants extracts have been chosen and synthesised to strongly reflect each theme. The data is now able to be ready for final write up.

Final Write Up: The final write up process has seen a significant development in the A2 and A3 competencies. Analysing the qualitative data was a long process of constant reflection, refinement, synthesis, meaning making & critical thinking. For the systematic review the key development was in the development of an argument during the writing of the introduction, as well as the analysis and synthesis of the papers.

Current Phase
A1	Knowledge Base	0 1 2 3 **4** 5
A2	Cognitive Abilities	0 1 2 3 **4** 5
A3	Creativity	0 1 2 3 **4** 5

Final Reflections

Seeing all the data collated into themes and extracts from participants has given me a lot of confidence that my original research idea was a good one. It has been satisfying to use the method and combine this with my knowledge of the subject matter. The reflexive element of the method allows me to use my knowledge, and this has been of significant help.

The method changed this year from 'Constructivist grounded theory' but there are similarities, and the transition has worked well. Collating the data over a short period rather than a long period was more pragmatic and I feel I can still tell the story that I had always hoped to tell.

The participant extracts show the power of qualitative research. I just wouldn't have been able to tell such a story from quantitative data. It has proven to be a difficult process to discard data during the method. To discard themes and to discard data extracts feels like you might lose the full story, and as someone who likes to be thorough in his work this has been difficult, but necessary. Supervision was very helpful in this matter from a qualitative specialist. Perhaps there will be ways to use that data in the future.

The knowledge I have gained should assist in future as a practitioner-researcher in this area.

I have significantly developed my writing ability in terms of the development of an argument, ensuring a logical flow to my final write up.

Domain B: Personal effectiveness

Application Stage

Summary of Evidence

I am passionate about research, and I have read, synthesised, and presented a lot of research as a clinician, trainer and lecturer. I recognise that when it has come to my own academic empirical research that I have often hit 'brick walls' and found it hard to maintain enthusiasm with some of the grinding elements of research. While I am very self-directed and self-reliant, I am aware that I need to ask for help and use the team at my disposal to get over the inevitable obstacles during my thesis. I recognise the boundaries of my knowledge and skills, particularly when it comes to the use of data, and I will need to use the sources of support. I am generally an enthusiastic person, and I am very enthusiastic about my area of expertise (addiction). I am a resilient person, I can take on large projects and I can manage a high caseload of work so I hope this will stand me in good stead. I will need to ensure balance so that I have the sufficient time to make the most of this opportunity and make time for my thesis in my busy working and family life. Some things will have to give to maintain my wellbeing and give my best to the thesis. I haven't always been good at this and have tended to take on too much work on and become 'stuck'. I have shown in my career the ability to take responsibility for my work and to work with autonomy.

My career has tended to develop organically because of hard work, competence, enthusiasm, having good working relationships etc. However, I have become better at giving this more consideration. I am now more reflective on my career, and I am making sensible career goals, such as undertaking a challenge like this thesis to become a research/practitioner and someone who can contribute more widely in the field. I want to develop and publish research in my area of expertise, and to have an academic role. I have recently developed my work network; I have the lead role for the NHS in gambling addiction across the north and I have had to develop a network outside of my immediate workplace – I share this with colleagues so our service users can benefit. This has been very worthwhile and has enriched me.

Current Phase

B1 Personal Qualities   0 1 **2** 3 4 5
B2 Self-Management   0 1 **2** 3 4 5
B3 Professional and Career development 0 1 **2** 3 4 5

RDF   Phase required
B1   1+
B2   1+
B3   1+

Needs and Actions (to be transferred to ILP)

- Negotiate a change in my timetable at work to include research so I have some scheduled in-work time to do my thesis
- To drop some of my work in order to accommodate my thesis

- To practice asking for help in my supervision sessions
- When I hit obstacles make notes for my ILP and problem solve
- Sustain and continue to develop my work network of experts in the field
- Develop a network within my peer group at NTU, library personnel, and NTU supervisors

Interim Review Year 1/Thesis Proposal

Summary of Evidence

I take Fridays to work on my doctorate and made this part of my weekly timetable. This helps although work can get in the way sometimes. I am working on being more boundaried around it so I can maintain momentum. I have completed the NTU 'time management' webinar.
I have maintained enthusiasm and perseverance, even when the work is mundane. The ethics submission was time consuming and involved quite a lot of thinking about doing research remotely.

I feel that I am making good use of supervision and the relationships and good. It is fun, business like and serves to motivate me with new goals.

My professional career continues to develop in this field. I continue to develop good relationships with peers as well as supporting those who are more junior in the field. I work with government, different stakeholders and organisations, so quite a lot of media work, teaching, research etc.

Current Phase

B1 Personal Qualities   0 1 2 **3** 4 5
B2 Self-Management   0 1 2 **3** 4 5
B3 Professional and Career development   0 1 2 **3** 4 5

Reflections

Time management is always the biggest challenge with so many competing work and family priorities, as well as maintaining the momentum with the DPsych. I am in the process of moving house and as well as having a young family, these things continue to pose challenges. The good thing is that I have a lot of personal drive, motivation and enthusiasm for the project and this field. Sticking to the time allocation and keeping boundaries will be all important. I tend to overextend myself with work and say yes to most things, this is something I am getting better at changing.

Needs & Actions (ILP updated)

To maintain attention to work-life balance issues
To keep to boundaries and time allocation

Annual Review End Year 1

Summary of Progress

The journey of this DPsych ebbs and flows. There are periods when my time commitment and boundaries are good, and then there are times when this slips and my paid employment work takes over. To a degree this is inevitable, but I think things have slipped a little this summer, with supervisors on leave and the external supervisor absent for a time.

I have shown commitment and perseverance through all the practical elements and paperwork, such as ethics, project proposal, and data management. The topic still interests me, and it is relevant to my work and to the policy work I do with government.

I'm pleased with my professional development. I work with Parliament & House of Lords. I work with the Department of Health. I was recently given the role of topic expert for the NICE Guidelines for gambling. I have also taken on some psychology students to do research within my service as well as linking with academic departments to develop research partnerships. So, I am also developing my applied research experience by designing other research and going through the journey of those projects. I am also on advisory boards of research projects.

Current Phase

B1 Personal Qualities   0 1 2 **3** 4 5
B2 Self-Management   0 1 **2** 3 4 5
B3 Professional and Career development 0 1 2 3 4 **5**

Reflections

I am doing well career wise and by developing my research skills through further involvement in research.

As always this is a personal battle to maintain momentum, motivation and resolve. Managing my timetable is a constant battle and this is what I need to improve upon this year as the actual research takes place.

Needs & Actions (ILP updated)

Revisit my work timetable to allow more ringfenced time for the project work.

Interim Review Year 2

Summary of Progress

I have become more motivated, enthusiastic and resilient as the project has unfolded and as I have achieved milestones. I can now see how the project is going to take a shape, and I have a timeline for completion, with the end in sight. I have been able to maintain momentum, produce outputs, and stick to plans. In the past my job would encroach on my thesis time, but this is not the case anymore.

Within my work setting I continue to develop external research partnerships with academic institutions and apply the learning from the thesis. I am part of research groups as a supervisor on innovative research areas in gambling. I am also the external supervisor for a trainee psychologist's project. I am also developing our own research and evaluation framework within my service, and I frequently meet with academic researchers to form the strategy for a research programme. Gambling research of this kind is very new in the UK, so this will be an important contribution.

I have continued to meet with Parliamentarians, Peers, and policymakers within government departments, to disseminate evidence and expertise to shape national policy and gambling laws. These are opportunities to apply the skills and knowledge from the DPsych and apply them in a real-world policy setting.

Current Phase

B1 Personal Qualities   0 1 2 3 **4** 5
B2 Self-Management   0 1 2 3 **4** 5
B3 Professional and Career development 0 1 2 3 4 **5**

Reflections

Finding enjoyment in the project has been important. It is linked to my work, and the work I do advising on policy and working with government departments, so this has also maintained enthusiasm and ensured that what I am doing is applied in the real-world context.

Gambling machines are addictive products, and yet there is very little regulation over them. The systematic review has the potential to highlight the ingredients of the machines could be subject to regulation in the future. Applying the knowledge from the DPsych to government inquiries in Northern Ireland and Westminster and to possible future regulation helps to maintain motivation and reflects the goal of the researcher-practitioner model.

As Topic Advisor for the NICE Guidelines for Harmful Gambling it also means I can apply knowledge from undertaking systematic reviews on the DPsych in real time.

As a supervisor to other students, it also means that I can apply not only my subject knowledge but research skills, from developing research questions and aims, through ethics applications and methodology development.

Needs & Actions (ILP updated)

To achieve a better work/life balance. Maybe this is not realistic until project end.

Final Submission
Phase required B1   2+ B2   2+ B3   1+

Summary of Progress
This period has been the most enjoyable so far. I have worked consistently hard and persevered, even when the going has got tough or mundane. My work/life balance has improved, and I have prioritised time for the thesis and developed a good momentum. Doing the interviews and immersing myself in the data has been very enjoyable. The enthusiasm I have for the topic and for the experiences of the participants has shone through. I have had to be responsive to change, in that the team and I decided to switch the qualitative method that would best work for me. In September I have been invited to the Northern Ireland Assembly to speak to their elected members following an inquiry into gambling machines. This means I can apply knowledge and evidence from the DPsych systematic review as well as from my clinical practice. I continue to be actively involved in the policy arena in England, again allowing me to apply research skills and knowledge from the DPsych. This is what legislators want – research and clinical evidence so the DPsych has been extremely useful. The last several months has been the write up period, with periodic supervision to ensure I remain on track. Enthusiasm for the project has really helped as well as perseverance. What I thought initially was the final write up led to several versions and to and fro with supervisors. The above qualities saw me through.

Current Phase
B1 Personal Qualities   0 1 2 3 **4** 5 B2 Self-Management   0 1 2 3 **4** 5 B3 Professional and Career development 0 1 2 3 4 **5**

Reflections
I had already got well into a DPsych project (2017-2019) when I had to stop due to not getting ethical approval from the prison service. To recover from that to develop and complete another DPsych project completion has demanded a lot on myself. During this period, I have significantly increased responsibility in my day job, and I have started a family. The personal qualities of enthusiasm, responsibility & self-management have strengthened. I'm very much looking forward to translating this research into influencing policy change and into practice. I have a vision for this work in terms of changing how things work in the criminal justice system, but also, we can prevent harm in the first place through policy change. I have been working with the UK government and the Northern Ireland Assembly, and I'd like to continue to work on harm prevention and policy in my research while advocating for change. I can also see myself working with the courts to assist those who find themselves brought before the courts with gambling related crimes. The DPsych has significant application in real world and clinical settings. There is a direct day to day application for me in my work.

I am on the advisory board for some government funded research, and I am involved in supervising a psychology student's thesis as the field supervisor. I have also established research partnerships with universities who will help me publish research related to my clinic work in the future. I would only have had a modest impact from my clinical experience; what I can now offer is more developed research experience and expertise to these settings. I have also built an extensive network in academia to assist me in the future.

Domain C: Research Governance and Organisation

Application Stage
Summary of Evidence I have completed empirical research at undergraduate level (published), & post-graduate level, and I have led on a large empirical project in the prison service. I also oversee a research and evaluation arm to the service that I oversee in the NHS, and we have partnerships with universities. So, I have a foundation of understanding. There is still much to learn. I have some experience of ethics in the NHS and the prison service, where an application for ethical approval was rejected. I will need to use the support of my supervision team to assist me here. The Doctorate is well structured and managing the planning and implementation of the project will be a challenging but achievable task. I will need to ensure adequate planning and preparation. I have several projects that I have managed and completed so these skills will be used and further developed. I have little knowledge of the funding of research or applying for grants. These are skills I will need to develop to achieve my goal of being a research practitioner.

Current RDF Phase

C1   Professional Conduct   0 1 **2** 3   4   5
C2   Research Management   0 **1** 2 3   4   5
C3   Finance, funding and resources **0** 1 2 3   4   5

<u>Vitae</u>

<u>Domain</u>	<u>Phase required</u>
C1	1+
C2	1+
C3	1+

Needs and Actions required (to be transferred to ILP)

- To update knowledge on the ethics of research and using research participants
- To write my research proposal
- To gain support to develop my ethics approval

Interim Review Year 1/Thesis Proposal

Summary of Evidence

I have completed my ethics submission and this has been sent to the university for consideration. So, during this process it has developed my understanding of a variety of considerations of solid ethical research in my context, and in the context of using remote data capture and storage.

In my work I oversee our research in the service. I have built relationships with universities with whom I collaborate, developed the ethics around our data collection, including consent. We have planned research topics and a strategy together and I am able to influence this. I develop the staff within the team to work with me on strengthening this and developing their skills. I am also working with universities to have service evaluations done by trainee psychologists.

We continue to operate a journal club which means we can continually critically evaluate research in my field of interest. Some of this relates to the areas covered by the thesis.

Current Phase

C1   Professional Conduct   0 1 **2** 3 4 5
C2   Research Management   0 1 **2** 3 4 5
C3   Finance, funding and resources   0 **1** 2 3 4 5

Reflections

The ethics submission has been an interesting process. Supervision has been very good to shape this, as well as my own reading and reflections. Reading many papers and critically evaluating them also provides greater appreciation and knowledge in this area.

Needs & Actions (ILP updated)

To complete data management plan and project approval
Continue to build on our research strategy within the workplace

Annual Review End Year 1

Summary of Progress
There has been good progress in this area due to the completion of the ethics submission and approval, as well as project plan and approval, and the data management plan. This has all strengthened my knowledge and experience in this area. The research is set to begin imminently.

Current Phase
C1   Professional Conduct   0   1   2   **3**   4   5 C2   Research Management   0   1   2   **3**   4   5 C3   Finance, funding and resources   0   **1**   2   3   4   5

Reflections
The ethics submission and project plan process all seemed to focus the project and help me get used to writing about it concisely and coherently. It was good practice. The data management plan was very helpful in thinking about the practicalities of doing interviews and dealing with data security from a remote base. The use of Microsoft Teams, for example, and the storage of the interview recordings and transcripts of the interviews was very important. Thinking about how to safeguard service users from a remote base was also worthwhile.

Needs & Actions (ILP updated)
Learn how to undertake research interviews

Interim Review Year 2

Summary of Progress

I have undertaken my research interviews and ensured that I have followed the ethics submission and data management plans.

Supervising others research projects has allowed me to support their projects in terms of ethics and research governance. I would have lacked confidence to do this at one time, whereas now I feel that I can make a good contribution to other's research.

I am working hard, alongside colleagues, to develop an independently funded 'statutory levy' from the gambling industry to an independent health board who can commission research projects to inform future policy making. This will transform the research agenda in gambling in the UK and allow research to investigate industry products (as my study does), industry practices, and a wider public health agenda.

Current Phase

C1	Professional Conduct	0	1	2	**3**	4	5
C2	Research Management	0	1	2	**3**	4	5
C3	Finance, funding and resources	0	1	2	**3**	4	5

Reflections

I am pleased that I have navigated all the interviews and maintained good governance over the data and participants.

I am developing my research knowledge and developing projects and partnerships locally and beyond. More confidence will come with more practice and experience. I am more adept at innovative and future thinking and seeing how my field can be developed.

Needs & Actions (ILP updated)

Final Submission
Required standard C1   1+ C2   3+ C3   1+

Summary of Progress
Conducting and managing the interview recordings and transcripts has meant that I can apply best practice to ethics, confidentiality, and data management. For example, the data extracts that I am using do not use the participants details and anything that may identify them within the extracts have been removed. The transcripts and recordings have been subject to secure storage. I have also been supervising two psychology students through ethics applications where I have been able to apply these principles. From the knowledge of the DPsych I have continued to establish a research strategy within the clinics that I oversee. I also continue to contribute to establish independent sources of funding for gambling research and the implementation of policy making research that could lead to greater regulation and policy change.

Current Phase
C1 Professional Conduct   0 1 2 **3** 4 5 C2 Research Management   0 1 2 **3** 4 5 C3 Finance, funding and resources 0 1 2 **3** 4 5

Reflections
Contained within the stories of participants is significant harm and emotional distress, for them and their families. They have signed consent forms and it is paramount that I respect their data and information. It is only when you conduct research as a principal investigator that you fully realise the importance of these principles and procedures. The aim is to use the knowledge from the DPsych research to contribute to policymaking and regulation. To improve the 'deal' that gamblers get through participating in the regulated gambling market in the UK. In addition to research, I'd like to act as an expert witness in court and apply the learning from this research, so I also have an eye on where I could apply the DPsych research in real world settings.

Domain D: Engagement, Influence and Impact

Application Stage

Summary of evidence

I don't think I could have got this far in my career without being able to work well and collaborating with others. My current role as lead of an NHS organisation involves working with a variety of stakeholders across the north of England. I work with Government on policy and legislation within gambling, including giving oral evidence to Select Committees, so I have been able to engage and influence others, collaborate, and disseminate complex literature to wide groups of people. My style is inclusive and collegiate; I recognise and thank the contributions of others. Being a psychologist has consistently meant listening to the feedback of others and responding well to this to shape my work. I have worked in a variety of team situations and worked well in these – from working with peers, clients, staff groups, and organisations. As a lecturer I have coached a range of students with a range of abilities and influenced them. I have led groups of people throughout my career and had to deal with a range of problems including conflict. I am now developing a network of internationally recognised peers in my field, and I intend to sustain these. I enjoy sharing ideas. I am flexible in my leadership style depending on who I am working with; I have found this to be helpful in influencing and enabling others.

I have been able to communicate research through my academic teaching and training, and I want to develop this in terms of communicating my own research.

I can create and develop ideas and turn these into real ventures – again I need to do this with my own research.

I am aware of policy relating to my field of interest and one day my research could have a bearing on the development of policy.

I am politically aware, and I work with a wide variety of stakeholders in my field. My area of interest (addiction) means that you must be politically aware and astute. It is more advantageous in terms of addressing addiction to have more influence on wider stakeholders and politicians than working in isolation.

Current Phase

D1 Working with others   0 1 2 **3** 4 5
D2 Communication and Dissemination 0 1 2 **3** 4 5
D3 Engagement and Impact   0 1 2 **3** 4 5

RDF standard
D1   1+
D2   1+
D3   1+

Needs and Actions (to be transferred to ILP)

Interim Review Year 1/Thesis Proposal

Summary of Evidence

I'm fortunate as I am in a position as Clinical Director of our NHS gambling clinics to work with so many other people, networks, stakeholders etc to influence a whole variety of goals. I continue to work with the House of Lords, Parliament, and Department of Health on gambling policy. I provide evidence sessions, which has included one on the addictive nature of gambling products. I regularly appear in the media to influence policy change on gambling and to educate the public. My work across the north of England means that I must harness a range of relationships with stakeholders. I mentor and supervise a range of staff within our service. I teach doctors, psychologists, public health professionals and others via university or other workshops.

I recently completed a diversity programme with senior colleagues in my NHS Trust.

Current Phase

D1 Working with others   0 1 2 **3** 4 5
D2 Communication and Dissemination 0 1 2 **3** 4 5
D3 Engagement and Impact   0 1 2 **3** 4 5

Reflections

This is an area of strength, and I am hoping to expand on this by using my own research to influence policy as well as the wider public.

Needs & Actions (ILP updated)

To present my own research to others as it unfolds.

Annual Review End Year 1

Summary of Progress

I have joined some research advisory boards, developed academic partnerships in research for the service I work in, and I have organised research to be undertaken by Doctoral students – so I have joined the supervisory teams. All of this has helped with building networks, teamwork and better ensuring research is linked to practice.

I work with a variety of stakeholders including Parliament and the House of Lords, DHSC, NHS England, as well as developing and shaping policy for gambling. I was recently employed to lead on the NICE Guidelines for gambling and this I will be able to shape the development of a team to work on this for the next two years.

Current Phase

Working with others   0   1   2   3   **4**   5
Communication and Dissemination   0   1   2   **3**   4   5
Engagement and Impact   0   1   2   3   **4**   5

Reflections

I think this is a strong area and continues to develop. I am able not just to engage with other teams and stakeholders but to do it in a way that has an impact on people's lives and policy. The gambling laws are currently being reviewed so I can take a role in influencing government policy in this area.

Needs & Actions (ILP updated)

I'm looking forward to being able to communicate and disseminate my own research in due course

Interim Review Year 2

Summary of Progress

I have gained significant influence in my field. I work well with others, developing relationships in order to deliver strategic objectives. For example, I lead the NICE Guidelines for Harmful Gambling (monthly committee meetings), where I am working with a committee to systematically review key topic areas and implement evidence-based guidelines for future practice across the NHS. My experience on the DPsych is used directly in this context.

I meet at least monthly with DHSC, NHS England, Parliamentarians and Peers to further the objectives of gambling reform. My role here is to synthesise and present evidence, and it relies upon my ability to maintain good working relationships. The gambling laws are now under review, with a White Paper due imminently. Some of the content I have been able to influence. I met with the Minister responsible for the review and gave him a personal briefing of several policy areas, all supported by research evidence. This included research related to my thesis and systematic review.

During the write up period I was asked to give evidence to a government select committee on gambling policy. I will continue to provide evidence to the government as they translate the recently published White Paper into policy implementation.

Current Phase

D1 Working with others   0   1   2   3   4   **5**
D2 Communication and Dissemination 0   1   2   3   4   **5**
D3 Engagement and Impact   0   1   2   3   4   **5**

Reflections

This has been an enjoyable part of my role. To be considered one of the country's experts in gambling treatment and in gambling policy is a privilege. I try to be a role model and inspire others around me to work beyond their day job and to see what they can achieve with the use of research and evidence.

Needs & Actions (ILP updated)

To disseminate my research to the Criminal Justice System and to influence criminal justice policy.

Final Submission
RDF standards D1 1+ D2 2+ D3 1+

Summary of Progress

I continue to use the knowledge and experience of the DPsych to play an influential role in this field. I continue to be engaged in the process of legislation, as the publication of the government white paper happened recently. I am well into the process as Topic Expert for the NICE Guidelines for Harmful Gambling, allowing me to have a deeper dive into systematic reviews and apply my DPsych knowledge. I am on the Advisory Board for research relating to establishing a coherent gambling treatment system, commissioned by the Department of Health. I am on the strategy board for gambling harm for Yorkshire and Humber Public Health. I am on the NHS England Clinical Reference Group for Gambling treatment. I am an advisor to the Department of Health gambling policy team. I have established teaching on the Psychology Doctorate programmes at Newcastle, Teeside, Hull, Sheffield, Hull, and Leeds University, where I provide annual lectures on gambling addiction. The research from the DPsych will hopefully play a direct role in informing criminal justice policy, and I have recently joined the HMPPS group on gambling. I set an example in my teaching, clinical leadership, research, contributions and social media presence – informing others and challenging the status quo, setting a vision for a better future for those who participate in gambling.

Current Phase

Working with others   0   1 2 3 4 **5**
Communication and Dissemination 0   1 2 3 4 **5**
Engagement and Impact   0   1 2 3 4 **5**

Final Reflections on Being a Researching Practitioner

Thanks to the DPsych I can provide an influential role as a researcher practitioner in the field of gambling harm and addiction. I'm pleased to have formed a good idea that has been translated into a story that will hopefully be heard by legislators. It has the possibility of influencing criminal justice policy as well as shaping my practice as a forensic psychologist.

The research skills I have acquired, both as a qualitative and quantitative researcher, should stand me in good stead as a leader in this field.

Individualised Learning Plan for DPsych Forensic Psychology

Name of Student: Matt Gaskell

Vitae Domain	Final Phase required	Need identified	Action to address need	Date for Completion	Date of Review	Progress
A1	2+	• Library assistance: Literature searching using NTU databases and electronic system	Complete tutorial with librarian and attend webinar	June 2021		Completed and helped to conduct systematic review of literature.
		• To get my literature base right up to date for my introduction and methodology.	Contact academic network and search for papers	July 2021		Completed. Good bank of papers and written arc of introduction & method.
		• To gain knowledge of qualitative methods which allow the co-construction of data with participants.	Read papers; attend webinars; attend lectures; supervision with qualitative expert	Oct 2021		Completed.

		• To update on literature on game design for my systematic review	Complete electronic search and contact authors and experts	Nov 2021		Search completed. Need to contact authors to see if more papers.
		• To attend the qualitative research methodology classes to update my knowledge on the relevant approach I will be using. To read to complement this learning and seek supervision.	Attend class	October 2021		Completed
		• To develop systematic review skills (use acquired books and NTU workshop material) and progress the review	Attend classes; follow books; watch videos; read systematic review papers	Nov 2021		Completed

A2	2+	To proceed with the interviews and learn under supervision	Complete interviews and reflect in supervision	Feb 2022		Completed
		To complete scoping searches for the systematic review to check there are enough papers	Read current papers, note keywords, conduct scoping.	March 2022		Completed
A3	2+	Develop argument construction for the introductions and discussions of my thesis and systematic review	Review papers and take note. Discuss in supervision	March-July 2023		Completed
B1	2+	• When I hit obstacles make notes for my supervision and problem solve	Take problems to supervision	Feb 2022-July 2023		Completed

B2	2+	• Negotiate a change in my timetable at work to include research so I have some scheduled in-work time to do my thesis	Speak to line manager.	April 2022		Completed
		• To drop some of my work in order to accommodate my thesis	Negotiate what can be dropped. Reduce clinical work.	April/May 2022		Completed
		• To practice asking for help in my supervision sessions	Prepare for supervision. Bring an agenda with challenges.	June 2022-June 2023		Completed
		• To maintain attention to work-life balance issues	Minimise working in family time period.	June 2022-June 2023		Completed
		• To keep to boundaries and time allocation	Stick to time allocated to research and don't fit extra work into it.	June 2022-June 2023		Completed

B3	1+	• Sustain and continue to develop my work network of experts in the field	Develop different networks: Clinical; academic; policy	Feb 2021-July 2023		Completed
		• Develop a network within my peer group at NTU, library personnel, and NTU supervisors	Use librarians and resources; develop supervision relationships.	2021-2023		Completed
C1	1+	• To update knowledge on the ethics of research and using research participants	Process of NTU application for ethical approval; take part in other's research and	2021-2023		Completed
		• To gain support to develop my ethics approval				
		• Continue to build on our research strategy within the workplace	Develop research partnerships, bids, and collaborations	2021-2023		Completed

C2	3+	• To write my research proposal • To complete data management plan and project approval		2021 2021		Completed Completed
C3	1+					
D1	1+	To present my own research to others as it unfolds	Give evidence to parliamentary committees and reviews on gambling products	2021-2023		Completed – opportunities will arise after completion of DPsych to present the actual thesis to criminal justice stakeholders
D2	2+	To disseminate my research to the Criminal Justice System and to influence criminal justice policy.				Same as above.

| D3 | 1+ | Disseminate knowledge via teaching | DClin programmes lectures | 2021-2023 | | Completed |
| | | Use research evidence to influence policy with government | Verbal and written evidence to parliamentary committees and inquiries. | 2021-2023 | | Completed |

Appendix 1: Consent form

Participant Number:……………………………..

It has been explained to you that we are looking at your experience of the unfolding process of addiction, and highlighting some of the factors involved in diminished control.

The findings will help us understand the case for mitigation in gambling addiction and financially based criminal cases.

Please tick below where you agree to consent (please tick ✓):

- I have read the information sheet and understood what I am being asked to do   ☐

- I agree to my data being collected through interviews and understand what will be done with this research   ☐

- I agree for my data to be kept and stored by the researcher until the research has finished   ☐

- I understand how I can stop taking part in the research   ☐

- I have asked any questions I have about the Information Sheet or what will happen next and feel that these have been answered fully   ☐

- I understand what information you will keep confidential and what information you will need to pass on   ☐

Thank you for helping me with this important research.

I have read the above information and ticked the boxes where I consent (agree) to take part in the research:

Signed…………………………………...………..
Date…………………..……………….

I agree for all of the interviews to be recorded using Microsoft Teams   ☐

Signed…………………………………...……..   Date…………………..……………..

If you would like to speak to the researcher, perhaps because you have a question about this, please contact Matt Gaskell using the contact details below.

Matt Gaskell, C/O Department of Psychology, Nottingham Trent University, 50 Shakespeare Street, Nottingham, NG1 4FQ. Email: matthew.gaskell2017@my.ntu.ac.uk or telephone: 07971 583591

Jens Bender, Department of Psychology, Nottingham Trent University, 50 Shakespeare Street, Nottingham, NG1 4FQ. Email: jensbender@ntu.ac.uk or telephone: 0115 84 82416.

Appendix 2: Semi-Structured Interview

Gambling and Mitigation Study

Ask general introductory questions and establish rapport

1) Can you describe your early experiences of gambling?

2) When did you become more engaged and involved with gambling? What changed, if anything?

3) When did you notice you had a problem with gambling? What did you notice to make you think you had a problem?

4) Can you describe a typical day's gambling once it became problematic?

5) What was your mindset and behaviour between gambling sessions? How much could you focus on other responsibilities/activities?

6) Which gambling products or activities did you engage in? What aspects of them did you find engaging and motivating?

7) What role did incentives from the operators play in your gambling? Were you a member of a VIP Scheme? Can you describe how these worked and the effect they had on your thinking and behaviour?

8) When did you start to contemplate stealing funds to resource your gambling? Can you tell me what happened and what went through your mind?

9) How did the stealing unfold over time?

10) Looking back for someone otherwise law abiding, how do you understand what you were going through and what was influencing your decisions?

11) What did you notice when you attempted to limit or stop your gambling? How difficult was this? What did you notice? What sense do you make as to why you persisted even though you had lost pleasure from it?

12) What was the significant event(s) that helped you to stop? How did you do it? What did you notice changed as you recovered from gambling?

13) Is there anything else you would like to say that you think is relevant?

Appendix 3: Information sheet – after the research

Thank you

Thank you for taking part in this study. This will help us understand better what the case for mitigation in court cases involving gambling addiction is.

If you change your mind

If you change your mind and do not want me to use the information you have given to me, you have until April 30th to tell us. If you do this, all the information collected about you will be deleted. Please contact Matt Gaskell using the contact details below and telling him your name and that you want to remove your data. You do not need to give a reason.

Extra support

If you felt that the interview brought back any urges to gamble and you felt you needed additional support you can contact:

- **National Gambling Helpline** on 0808 8020 133

What now

After the interviews have been checked and typed up, you will also have a chance to check them to make sure you feel it is an accurate translation of the interview. Matt will contact you to arrange sending you these.

Thank you for your help in this research,

Matt Gaskell
Contact details**: matthew.gaskell2017@my.ntu.ac.uk** or 07971 583591

Alternatively you may also contact Dr Jens Bender: jens.bender@ntu.ac.uk

Appendix 4: Information sheet

Please could you take the time to read the following information carefully.

What is the research about?

You have been asked if you would like to take part in some research. The research is interested in the experience of the process of gambling addiction and the interaction with addictive gambling activities and commercial incentives, for those who committed financially based crimes to fund their addiction. The research will examine the case for mitigation in future criminal justice cases, and will present the case for prison diversion treatment schemes.

It is up to you if you want to take part in the research. If you take part in the research you will not receive anything extra and if you do not want to take part, you will not lose anything.

The person who is carrying out the research is Matt Gaskell.

Please contact Matt, using the contact details at the bottom of the page if you have any questions about the research.

What would you be asked to do?

If you decide to take part in the study, you will be asked to take part in an interview. The interview will take place via a secure online video platform.

It will last about 60-90 minutes. If more time is needed this will be arranged with you. You can stop the interviews at any time to have a break or if you don't want to do it anymore.

What happens if I do not want to take part anymore?

You can stop the interview **at any time**. If you change your mind and do not want to take part anymore, you have 1 month (4 weeks) after the interview to let me know.

You do not have to tell the researcher why you have changed your mind**.**

What happens to the information you give to me?

All of the data you give in the interview will be recorded by the online platform and automatically saved in secure university online folders. This information will then be transcribed on the computer, and again saved securely on the same secure drives.

Information about you will be kept on a locked computer or in a locked drawer, which only the researcher will have access to. None of your data will have your name on or any identifiable information.

The researcher will treat your information confidentially, that is, they will not tell anyone what your name is.

<u>What you say in the interviews will be kept private unless:</u>

- You tell the researcher that you want to harm yourself
- You tell me the researcher someone else is at risk of being harmed
- You tell the researcher information about an offence which you have not been convicted for (like the name of a victim and when the offence happened)

If you mention any of these things to me, I will have to pass the information on to the relevant authority.

I will write report(s) and presentation(s) at the end of this study and some of the information collected will be included in these. You will never mention be mentioned by name in these.

When only a small group of people are interviewed there is a chance that they made be identified because of this. However, every effort will be made to ensure you cannot be identified within any reports and / or presentations by not including any names or places you mention.

After the interviews have been typed up, you will also have a chance to check them to make sure you feel it is an accurate translation of the interview.

What do I do now?

If you want to take part in the research please discuss this with Matt and a meeting will then be made either now, or at a later date, to conduct the interview. You can also ask any questions at this time.

You will then be asked to sign a consent form to say you are happy to take part in the research and for it to be recorded. Matt will go through this with you in the meeting.

Thank you for taking the time to read this.

Contact details for the research:
Matt Gaskell, C/O Department of Psychology, Nottingham Trent University, 50 Shakespeare Street, Nottingham, NG1 4FQ. Email: matthew.gaskell2017@my.ntu.ac.uk or telephone: 07971 583591

Or Jens Bender, Department of Psychology, Nottingham Trent University, 50 Shakespeare Street, Nottingham, NG1 4FQ. Email: jensbender@ntu.ac.uk or telephone: 0115 84 82416.