GETTING GROUNDED IN PROBLEMATIC PLAY
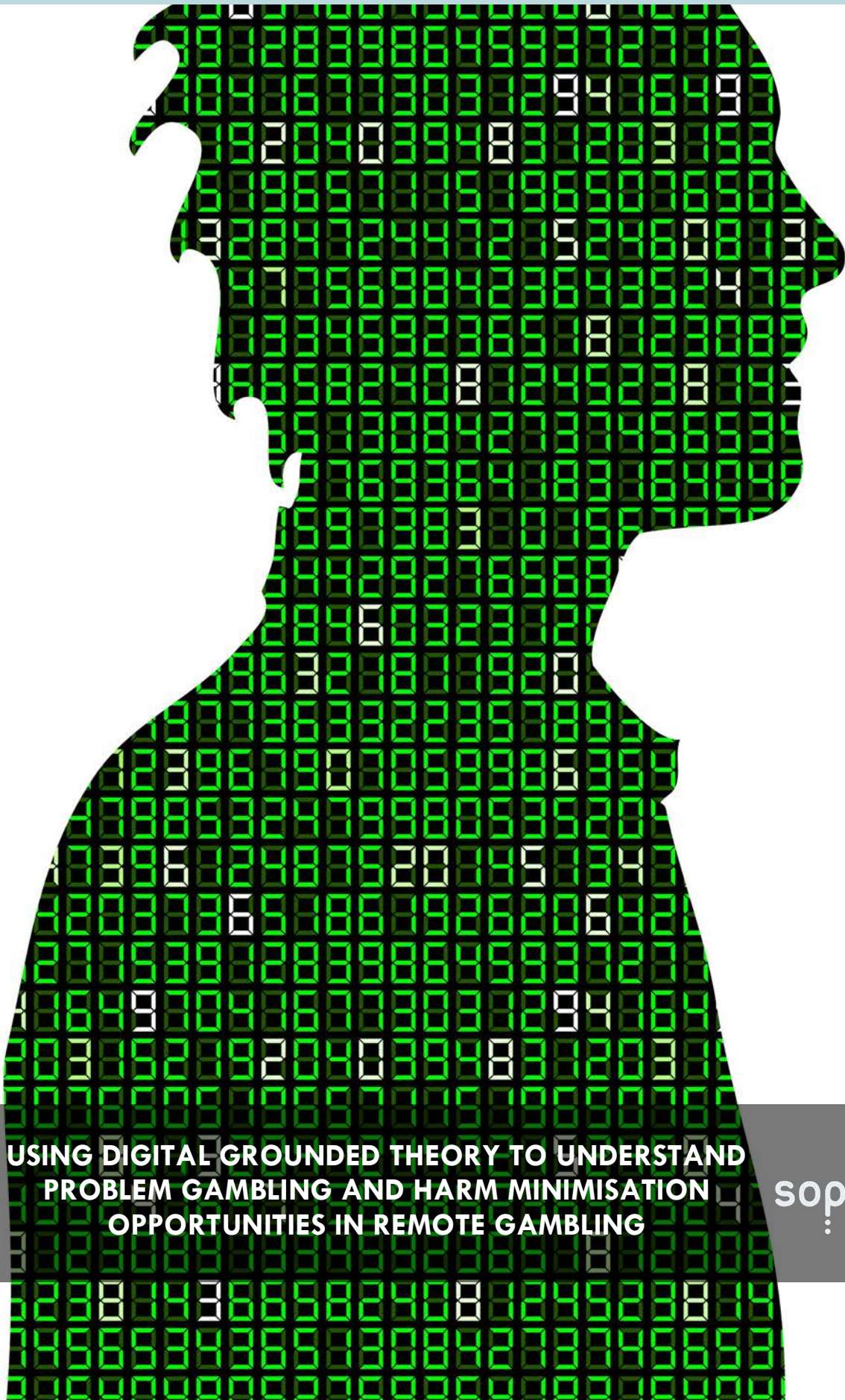
USING DIGITAL GROUNDED THEORY TO UNDERSTAND PROBLEM GAMBLING AND HARM MINIMISATION OPPORTUNITIES IN REMOTE GAMBLING

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GETTING GROUNDED IN PROBLEMATIC PLAY:
USING DIGITAL GROUNDED THEORY TO UNDERSTAND
PROBLEM GAMBLING AND HARM MINIMISATION
OPPORTUNITIES IN REMOTE GAMBLING

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1 EXECUTIVE SUMMARY

COMMISSIONED TO UNDERSTAND PROBLEMATIC PLAY

This project was commissioned by GambleAware as part of its programme of research designed to improve understanding in relation to risky behaviour in remote gambling environments and to examine how such risks and associated harms can be mitigated.

The study was designed to explore patterns of problem gambling in the remote gambling sector and to provide new ideas and theoretical foundations for strategies to mitigate risks and harms. Only problem gamblers were studied; low-risk, moderate risk and non-problem gamblers were beyond the scope of this research.

The study did not have a priori hypotheses to test; rather the research aim was to generate new theoretical concepts to help account for patterns of problem gambling observed within remote gambling environments. This means the focus of the study was to observe patterns of remote gambling of problem gamblers over a consistent time-period and to identify the specific gambling behaviours and variables that were related to probable harmful consequences for those participants. Particular emphasis in the study was placed on highlighting new concepts to emerge that are absent from existing problem gambling literature, but may assist in explaining problem gambling in remote settings.

A DIFFERENT APPROACH TO RESEARCHING BIG DATA

We used a qualitative, rather than a traditionally quantitative, approach to making sense out of the 'big data' held by gambling companies. This approach has several benefits, perhaps the most important of which is generating new ideas. Grounded theory was employed because of its powerful application to areas of limited existing theory such as remote gambling.

Grounded theory, while a systematic research method, does not adopt an initial theoretical framework. Instead, it produces new theory that is 'grounded' in the examined data. Through an iterative process of coding behaviours, developing and refining concepts from the data, patterns pertinent to the research question gradually emerge, culminating in proposed theories of problematic play in remote environments.

Two types of data were analysed in this research. First, comprehensive and unrestricted access to digital data capturing the gambling behaviour of 101 problem gamblers was shared by the internet gambling operator Unibet for analysis. The data spanning September 2015 to November 2015 comprised the following variables:
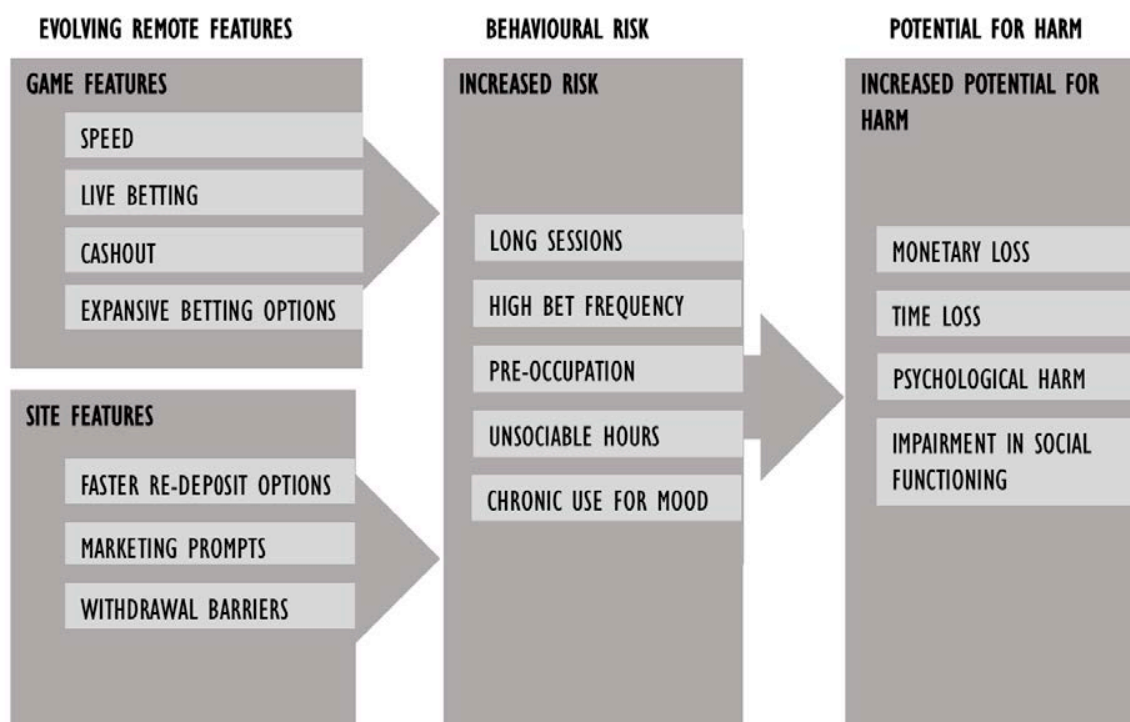
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- Daily total and net expenditure for each product;
- Detailed records of transactions, ordered chronologically by the second; captured information on bet selection, bet outcome, bet type, date, time, stake size, win size, running balance, game type;
- Communications between the participant and customer services and;
- Interactions with responsible gambling tools or responsible gambling staff.

These data were analysed in a 'line by line' format where the researchers followed the gambling behaviour of individual problem gamblers, observing each of their gambling behavioural events in relation to the antecedent and consequential gambling events, across a three-month time-period. By following the gambling events in chronological order, and therefore acknowledging the sequence of behaviours, the researchers were able to identify patterns of potentially harmful gambling behaviour and propose potential explanatory mechanisms and risk factors that account for such play. Essentially, the digital data were analysed with emphasis on understanding the sequence of problem gambling processes, rather than an emphasis on the specific measurement of variables and the statistical significance of relationships.

In addition, interviews conducted via asynchronous computer-mediated communication (CMC) with 11 problem gamblers provided additional context for the study. Interviews provided insights through exploring attitudes, experiences and personal explanations of the player's own behaviour. Participants were interviewed regarding their attitudes and experiences with remote gambling in general, and in addition, interviewed regarding their attitudes and experiences to the behavioural processes that emerged from the analyses of the behavioural data.

It should also be noted that grounded theory, like all research methods, has limitations. For example, this study does not to provide an exhaustive, representative account of all behaviour that occurs within remote gambling settings, but rather suggests behavioural processes that lead to patterns of problem gambling behaviour. It does not seek to test hypotheses or provide evidence, but to generate theory about inherently complex behaviours (such as problem gambling in remote settings), while providing a clear transparent process. Accordingly, the proposed models should be verified with further empirical research.

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MODEL 1. EVOLVING REMOTE FEATURES

EVOLVING REMOTE FEATURES	BEHAVIOURAL RISK	POTENTIAL FOR HARM
GAME FEATURES	**INCREASED RISK**	**INCREASED POTENTIAL FOR HARM**
SPEED	LONG SESSIONS	MONETARY LOSS
LIVE BETTING	HIGH BET FREQUENCY	TIME LOSS
CASHOUT	PRE-OCCUPATION	PSYCHOLOGICAL HARM
EXPANSIVE BETTING OPTIONS	UNSOCIABLE HOURS	IMPAIRMENT IN SOCIAL FUNCTIONING
SITE FEATURES	CHRONIC USE FOR MOOD	
FASTER RE-DEPOSIT OPTIONS		
MARKETING PROMPTS		
WITHDRAWAL BARRIERS		

EVOLVING REMOTE GAME AND SITE FEATURES

The development and expansion of specific remote gambling features have played a significant role in the behavioural patterns of problem gamblers observed within the study. Development of characteristics in remote gambling settings fall into two broad categories:

- *Features of a gambling activity* which were consistently related with patterns of problem gambling behaviour including *Speed of Play, Live Betting, Cash Out* and *Betting Option Expansion,* and;
- *Features of the remote gambling site* which were consistently related with patterns of problem gambling behaviour including *Speed of Transactions, Marketing Prompts* and *Withdrawal Barriers*.

The above figure summarises Model 1 which highlights the collective influence of evolving remote features on various forms of behavioural risk and associated opportunities available to improve responsible gambling provision. These are discussed below.

LONG SESSIONS

Arguably, the largest transformation from land-based to remote gambling is the vast amount of opportunities to gamble at any time of day, with extensive flexibility to match situational preferences across different gambling contexts. This increase in opportunity has increased the level of continuity that is available (and feasible) in remote gambling sessions; particularly within gambling structures that were traditionally perceived as non-continuous, such as sports betting.

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There are multiple mechanisms that have been observed in data that are proposed as explanatory factors for the long duration of gambling sessions for many of the problem gamblers within this study. An increased number of betting markets (bet types, sporting event types), betting at short odds to increase win rate and cashing out losing bets to re-stake elsewhere all contributed to making remote betting (particularly sports betting) more continuous (i.e., shorter breaks between bets). This *continuity* creates an opportunity for problem gamblers to continue gambling and extend the session after incurring losses. Sports bettors who engage in *live betting* are rarely, if at all, required to experience a break-in-play because there are many live-betting opportunities at any point in time. A *Cash Out* function can be applied to extend the duration of sports betting sessions, by cashing out bets that are probably going to lose and retaining at least some funds which can be immediately re-staked on further bets. Effectively, these mechanisms appear to contribute to the observed long duration of remote gambling sessions for many of the problem gamblers within the study.

HIGH BET FREQUENCY

The virtually unlimited availability of options to gamble, and the increased speed of gambling means that problem gamblers can lose substantial sums in a short space of time, and when this occurs problem gamblers are more likely to make further deposits and engage in emotionally driven gambling. Because of the availability of betting on live events and micro-components of sporting events, sports betting is no longer immune to fast, continuous gambling patterns in remote settings. In addition to high frequency gambling within slot machine gambling sessions, problem gamblers were also observed to regularly engage in high frequency sports betting sessions.

PRE-OCCUPATION

The accessibility of remote gambling means that problem gamblers are betting intermittently throughout the day, rather than confining gambling to a consistent 'time window'. Problem gamblers return periodically throughout the day, either to chase losses or generate arousal. This intermittent pattern has negative implications for engagement and focus in important life domains such as work, family and health. New features, like Cash Out, require more attentional demand from players when gambling.

UNSOCIABLE HOURS

An evening gambling session can often extend significantly beyond midnight and several hours into the next day as an unplanned, emotive reaction to incurred losses. Late night gambling sessions can lead to negative consequences for the player with respect to functioning the subsequent day, and over the longer term.

MOOD MODIFICATION

The convenience and immediate accessibility of remote gambling, and the virtually unlimited opportunities to gamble at any time of day, means that

problem gamblers can use remote gambling to try to modify mood whenever necessary.

POTENTIAL FOR HARM

Behavioural and interview data indicated that the substantial amounts of money being lost by problem gamblers were having a significant negative effect on their well-being. Data also indicated that monetary losses were not the only harmful consequences of high intensity remote gambling. The opportunity cost of time spent, and in addition the pre-occupation with remote gambling, was reported to lead to significant negative consequences for the problem gamblers.

Problem gamblers gambled at a relatively high level of intensity, in terms of both total amount being risked and total number of bets placed, and this tended reduced players' awareness and rational decision-making. In response, players would subsequently experience negative emotions because they gambled more than intended.

OPPORTUNITIES TO DEVELOP RESPONSIBLE GAMBLING
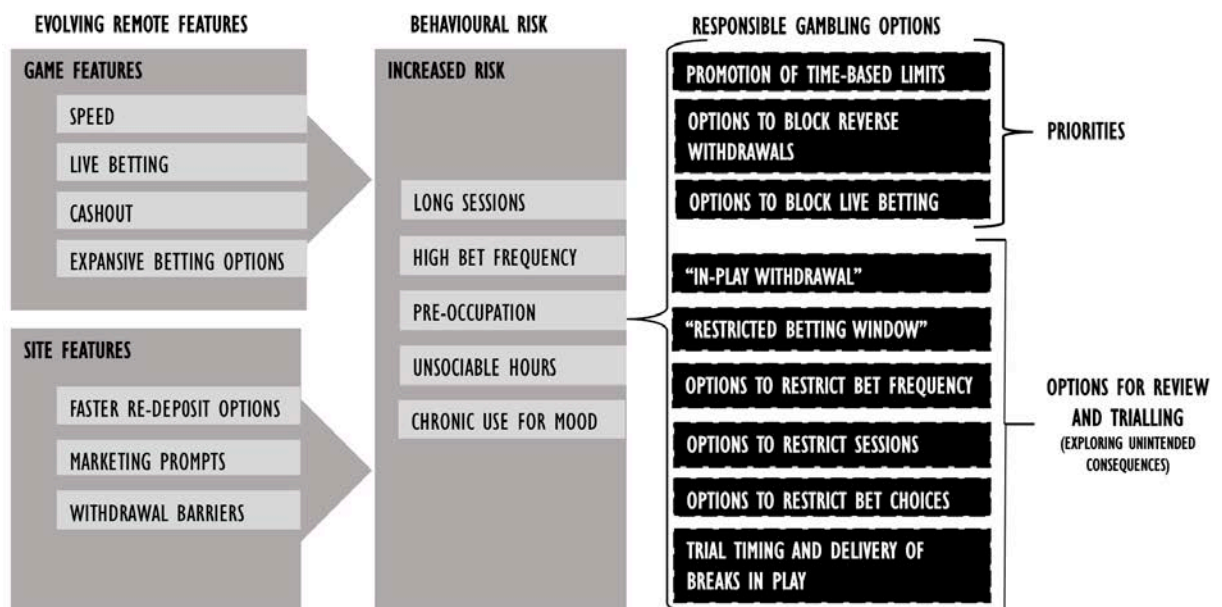
Opportunities to develop and research responsible gambling emerging from Model 1 while screening for unintended consequences include:
- Further development and promotion of time-related responsible gambling tools (e.g., options for designating 'gambling windows');
- Prioritise developing opportunities for restricting riskier betting options (e.g., live betting, cash out, reverse withdrawals);
- Explore an 'in-play withdrawal' option and;
- Explore strategies to mitigate risks associated with continuity (e.g., timing and delivery of breaks in play).

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MODEL 2. WINNING AND BEHAVIOURAL RISK
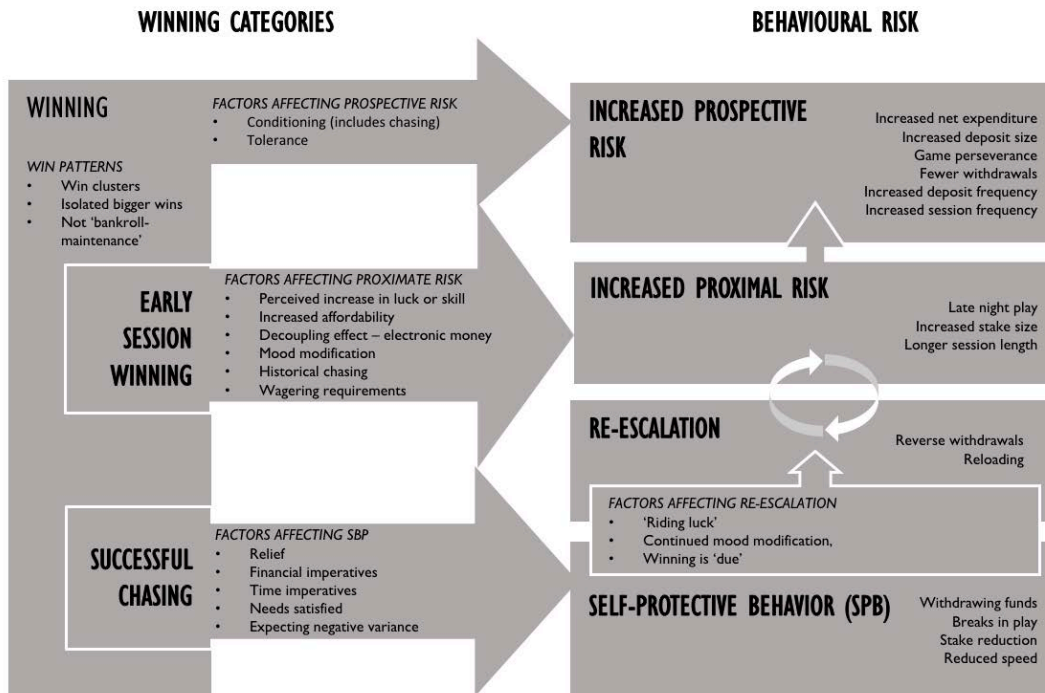
In Model 2, *Winning and Behavioural Risk, winning* refers to a substantive and immediate increase in financial position. In the above figure, Model 2 demonstrates how winning can influence behavioural risk and outlines associated opportunities for improving responsible gambling provision. These propositions are discussed below.

PROXIMAL RISK
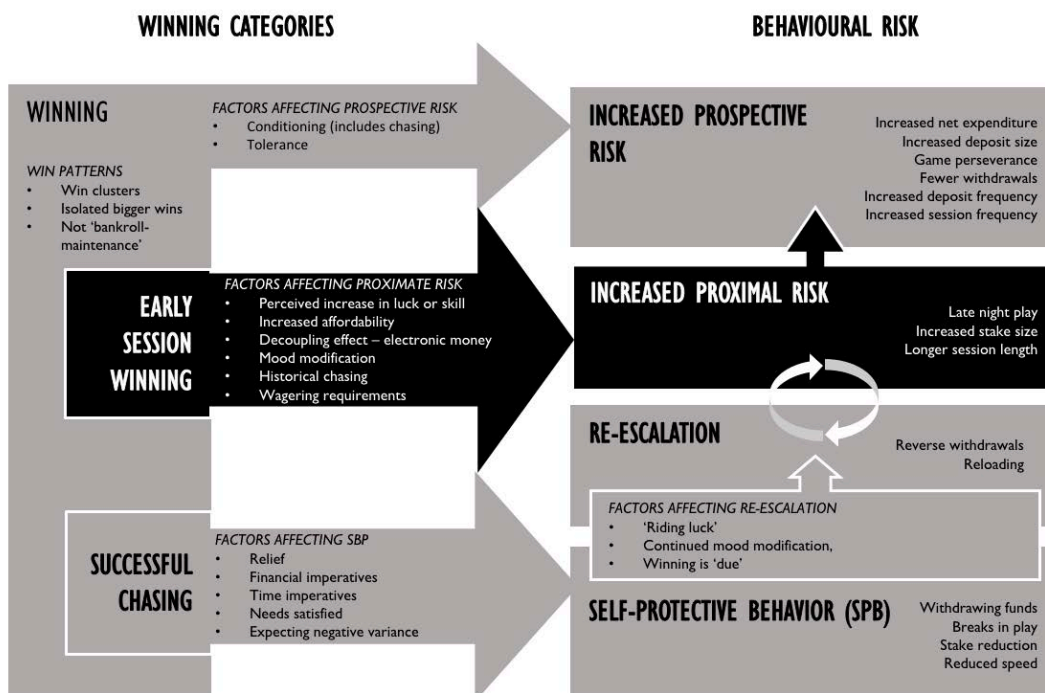
Proximal risk refers to immediate risky behaviours that directly follow *early session winning*. Where winning occurred early in a session, while there was no immediate financial threat, problem gamblers exhibited risky behavior by gambling for longer, playing later at night or betting at higher stakes. These *proximal risks* were attributed by problem gamblers to the following factors: increased belief in personal luck or skill, having more money with which to gamble, undervaluing electronic money relative to real cash, enhanced mood, and the motivation to recover losses from previous sessions despite being in a net positive financial position in the current session.

SELF-PROTECTIVE BEHAVIOUR (SPB)

Self-protective behavior (SPB) refers to a reduction in potentially risky behaviour among problem gamblers following the recovery of session losses (i.e., *successful chasing*). SPB tends to be time-limited and commonly expressed through account withdrawals. Usually, problem gamblers do not withdraw all available funds but retain a small portion of the balance to continue gambling – a practice that often leads to a re-escalation of risk. SPB among problem gamblers was claimed to reflect immediate financial pressures, time constraints and relief from winning back money. Other forms of SPB included initiating breaks in play, reducing frequency of bets and playing at lower stakes.

WINNING CATEGORIES

BEHAVIOURAL RISK

WINNING

FACTORS AFFECTING PROSPECTIVE RISK
- Conditioning (includes chasing)
- Tolerance

WIN PATTERNS
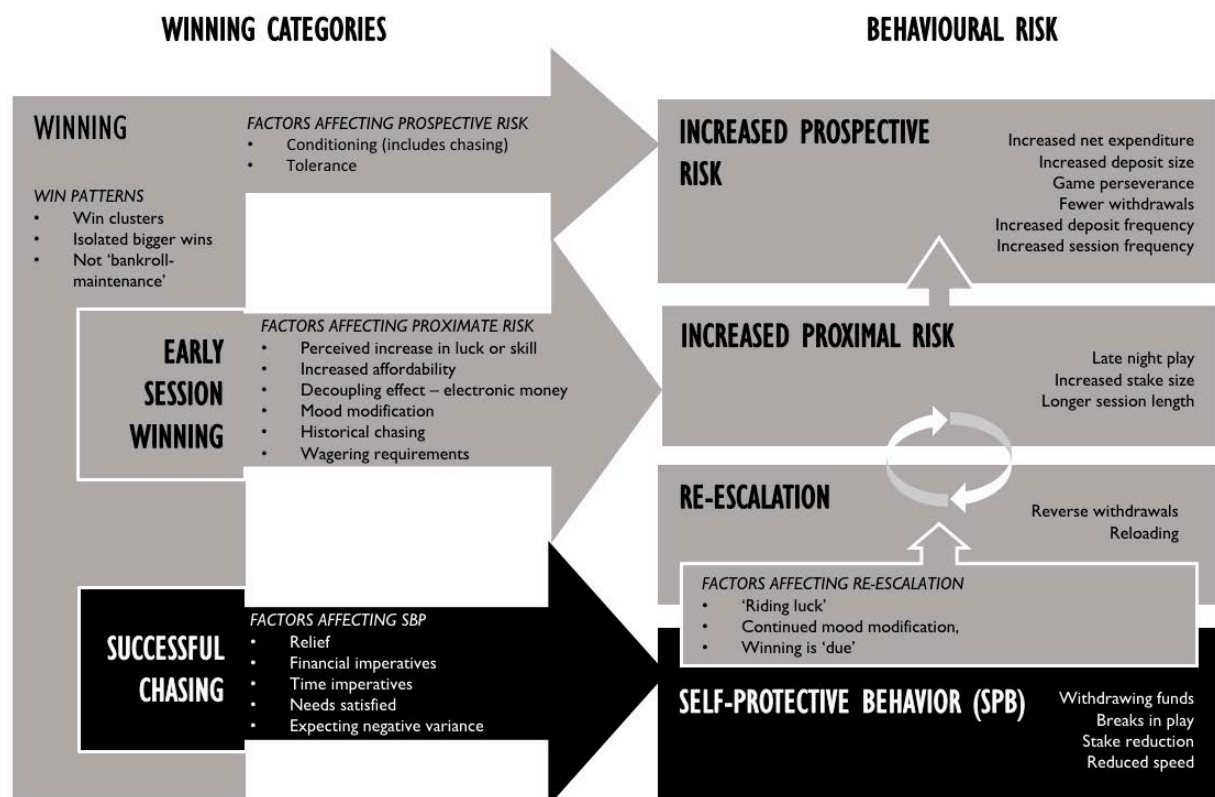- Win clusters
- Isolated bigger wins
- Not 'bankroll-maintenance'

INCREASED PROSPECTIVE RISK

Increased net expenditure
Increased deposit size
Game perseverance
Fewer withdrawals
Increased deposit frequency
Increased session frequency

EARLY SESSION WINNING

FACTORS AFFECTING PROXIMATE RISK
- Perceived increase in luck or skill
- Increased affordability
- Decoupling effect – electronic money
- Mood modification
- Historical chasing
- Wagering requirements

INCREASED PROXIMAL RISK

Late night play
Increased stake size
Longer session length

RE-ESCALATION

Reverse withdrawals
Reloading

FACTORS AFFECTING RE-ESCALATION
- 'Riding luck'
- Continued mood modification,
- Winning is 'due'

SUCCESSFUL CHASING

FACTORS AFFECTING SBP
- Relief
- Financial imperatives
- Time imperatives
- Needs satisfied
- Expecting negative variance

SELF-PROTECTIVE BEHAVIOR (SPB)

Withdrawing funds
Breaks in play
Stake reduction
Reduced speed

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RE-ESCALATION

While the problem gambler may exhibit *self-protective behaviour* after recovering losses, risky behaviour may *re-escalate* if problem gamblers fail to stop gambling shortly thereafter. Recurrent deposits (i.e., *reloads*) and cancelling previous withdrawal decisions (i.e., *reverse withdrawals*) are common behavioural features when risk re-escalates. Interviews with problem gamblers suggested that risk can re-escalate because of biased expectations of continued winning and the need for the continued mood enhancement associated with winning.

PROSPECTIVE RISK
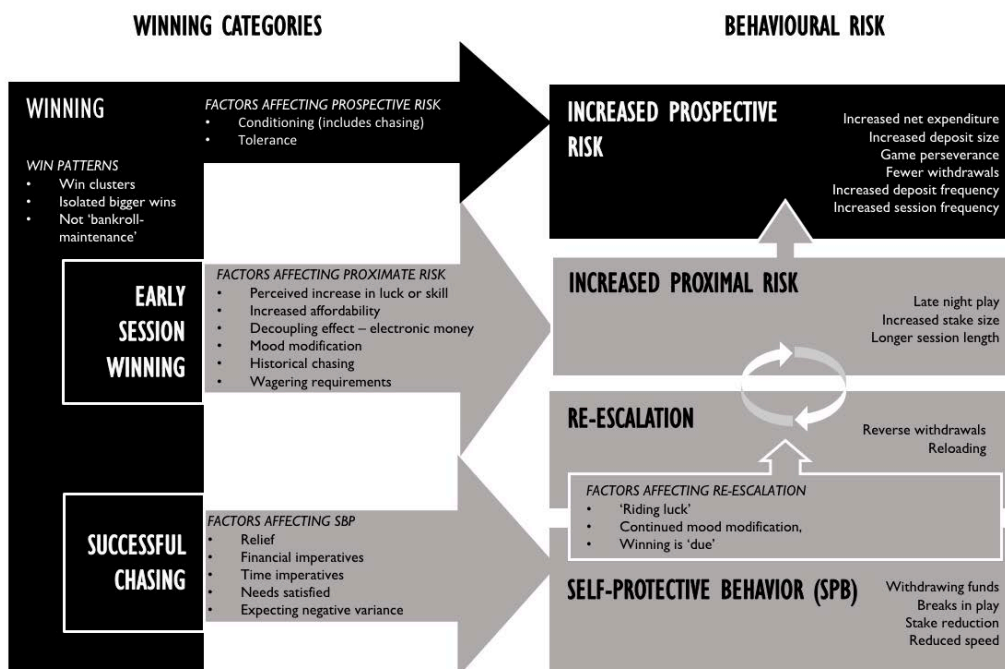
Prospective risk refers to risky behaviours exhibited in subsequent gambling sessions following a period of winning. Both *early session winning* and *successful chasing* were observed to increase *prospective risk*. Prospective risk was characterised by increases in net expenditure, deposit size, deposit frequency and session frequency. Strong preferences for specific games associated with past winning were also detected. Initial indications are that prospective risks dissipate over time particularly following periods of sustained losing.

OPPORTUNITIES TO DEVELOP RESPONSIBLE GAMBLING
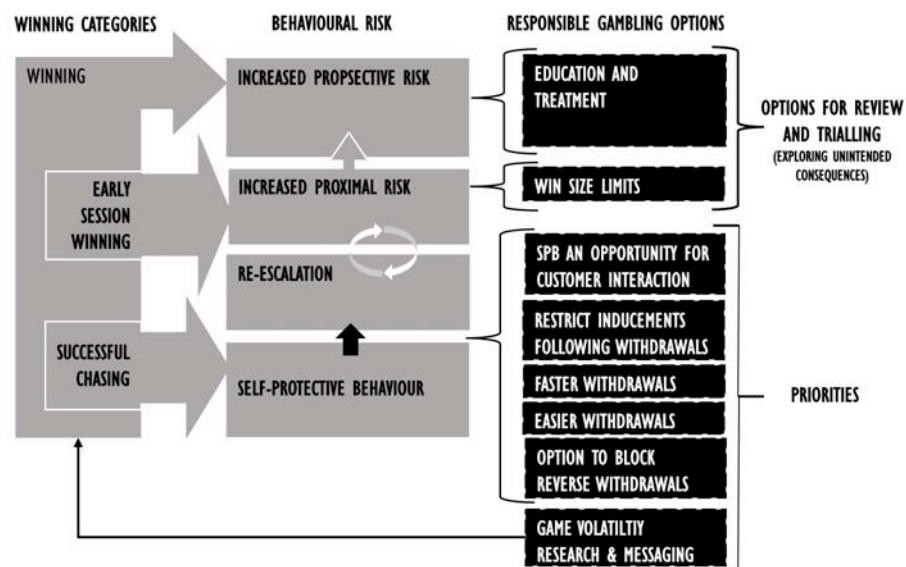
Opportunities to develop and research responsible gambling in relation to Model 2 while screening for unintended consequences include:

- Promoting and facilitating the account withdrawal process to ensure problem gamblers are not nudged out of their decision to stop gambling or withdraw funds;
- Exploring *self-protective behaviour* and *winning* as an opportunity for staff to engage with suspected problem gamblers who may be more amenable to outside interventions during these periods;
- Exploring win limits as a responsible gambling option, and;
- Develop a better understanding of game volatility given its potential link to *Winning and Behavioural Risk* and explore options for how product volatility can be communicated to consumers.

CONCLUDING REMARKS

The *Evolving Remote Features* model proposes that structural developments such as *cash out* and *live betting* can facilitate increased risk among problem gamblers. The *Winning and Behavioural Risk* model proposes that winning is an important short-term risk factor for problem gambling, and that associated risks vary according to timing and the gambler's financial position. Both models provide important insights into the stimulation and maintenance of problematic play in remote gambling, and in doing so, can help guide policy, research and trailing in responsible gambling and harm minimisation.

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2 ACKNOWLEDGEMENTS

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3 INTRODUCTION

3.1 COMMISSIONING CONTEXT

This project has been commissioned by GambleAware as part of its programme of research designed to explore how problem gambling in remote gambling environments can be better understood, and how its associated risks and harms can be mitigated. Specifically, this project was designed to develop, wherever possible, an explanatory understanding of the causal mechanisms of problem gambling with the aim to provide new ideas and theoretical foundation for strategic interventions supporting player protection and risk management in the remote gambling sector. This innovative design relies on adopting a qualitative approach to a traditionally quantitative paradigm.

3.2 QUALITATIVE RESEARCH IN THE DIGITAL AGE

New opportunities are available to social scientists through an exponential increase in data availability because of technological developments in how data are managed digitally. This emergence of massively multivariate information being held in digital format is most commonly referred to as "Big Data". These new opportunities are emerging because Big Data offer greater scale, speed and scope relative to traditional data sources (Kitchin & McArdle, 2016). This shift in paradigm is argued to facilitate new research methods that will identify novel patterns within, and relations between data (McFarland, Lewis & Goldberg, 2015). However, it is argued that Big Data also present an extensive range of challenges (Golder & Macy, 2014).

To date, most approaches to analysing these digital data have been quantitative in nature. The field of 'machine learning'[1] has lead the charge here; a fact that is unsurprising given that an engineering-based approach gives immediate focus to issues of financial and practical relevance (e.g., changing behaviour without necessarily understanding how or why). This kind of approach addresses questions like 'what works', and concerns relating to accuracy. In social science research however, the primary focus lies in trying to understand and explain the processes driving a phenomenon (McFarland, et al., 2015). Table 1 outlines ontological differences between the social sciences and engineering approaches to interrogating Big Data.

TABLE 1. COMPARISON OF DIFFERENT RESEARCH CULTURES APPROACH TO BIG DATA

Social Science	Engineering/Industry
Aims to search for explanation and why something important happens	Search for accurate and novel prediction of what happens
Aims to develop theory to advance knowledge and understanding	Create algorithm to make accurate prediction
Focus on explanation	Focus on what works and predicts useful outcomes
Theory-driven	Applied

Table adapted from McFarland, et al, 2015

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[1] Machine learning, a technique used in computer science and engineering, is the study of algorithms that can learn from data and then proceed to make predictions that can be used in various real-world applications.

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The value of quantitative approaches to analysing digital data lies most importantly in their accuracy and precision, and these qualities are evidenced by the preponderance of applications in industry and other applied settings. We argue, like McFarland and colleagues, that qualitative approaches to digital data, while featuring less in applied settings (including commercial gambling), have an important role to play in advancing knowledge and understanding.

Quantitative approaches require initial decisions to select variables and rely upon existing knowledge and currently available research. Only variables that are predetermined to be relevant will be captured in the data collection process, therefore limiting the scope of data that emerge in the process. In this context, the variables identified for quantitative analysis may not be the most appropriate, or at least, may not be a fully comprehensive set of relevant variables to better understand remote gambling behaviour. Given the limited evidence base pertaining to remote gambling, we argue that this is a significant limitation of a purely quantitative approach to analytics. Qualitative approaches are more flexible and do not require an upfront definition of features being studied. Indeed, reducing conceptual ambiguities is often an output rather than an input of qualitative research.

A quantitative approach can also be limited not just in terms of how variables are identified for research, but also in terms of how these variables are defined. Many variables of potential interest within gambling studies are not easily defined, and often lack conceptual clarity. For example, consider a concept central to problem gambling theory yet it has considerable ambiguity in its definition – "chasing losses". It is questionable whether chasing losses should be conceptualised as *going back another day to win your money back*'. We suggest that this definition is likely too broad, and in its simplicity, could refer to most types of gamblers and their repertoire of behaviours.

A quantitative-only approach might ignore potentially important information regarding player perspectives. While there are limitations to self-report data, problem gamblers may have important insight to share regarding their own gambling behaviour. By including data drawn from participants' own perspectives there is less chance of omitting important unanticipated variables and processes that were not pre-determined by researchers.

Finally, we would argue that behavioural variables (e.g., making a deposit, game selection, placing a bet, making a withdrawal) are understood best in sequence and in the right context. Restricting the research design to a reductionist, quantitative approach may mean that important contextual elements are missed. In trying to understand how problem gambling develops, and how it may be mitigated, it is important that a wide range of information is considered.

3.3 AIMS AND OBJECTIVES

The aim of this project is to advance our understanding of how problem gambling develops, or is facilitated, in remote gambling environments. Subsequently, through this improved understanding, we will make a case for a selection of player protection strategies. To achieve these aims, we adopted an innovative approach to using grounded theory to examine digital data pertaining to gambling-related transactions, preferences, behaviours and outcomes.

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The specific objectives of this research are to:

1. Generate contextualised accounts of potentially harmful behaviour in remote gambling. Consistent with the 'Ground Theory' approach, this research moves beyond description (describing what, when and who) to also including an explanatory component (attempting to explain how and why).

2. Extend knowledge, deepen understanding and generally contribute to improved commercial, regulatory, and potentially clinical responses to problem gambling in remote settings. It is anticipated that emerging insights could add to the growing knowledge base being used to inform trialing harm minimisation strategies in the Remote Gambling Industry in Great Britain[2].

3. Make recommendations for further research in both academic and applied settings (e.g., trialing player protection tools in real gambling environments)

3.4   POLICY RELEVANCE

In April 2016, following a public consultation, the Responsible Gambling Strategy Board produced a 'National Responsible Gambling Strategy' of which the overarching aim was to minimise gambling-related harm. Outlined in the strategy were five priority objectives that set the agenda for activities (including research) supporting that aim. This project, while supporting all five objectives, contributes most to the two objectives we have outlined in Table 2.

TABLE 2. PROJECT RELEVANCE TO THE NATIONAL RESPONSIBLE GAMBLING STRATEGY

Priority Objective	Project Relevance
To develop more effective harm minimisation interventions through further experimentation and piloting of different approaches.	Given that research on problem gambling in remote environments is limited, this research develops relevant theory to provide insight for trialing the most promising player protection strategies.
To build a culture where new initiatives are routinely evaluated and findings put into practice.	

The strategy also outlines a series of 'priority actions' to support these 'priority objectives'. Most specifically, this research directly supports Priority Action 5 of the strategy (see p.5):

> "*Priority action 5: Improving methods of identifying harmful play. This action calls for continued work to develop methods of identifying patterns of play that are linked to harm. Such methods include algorithms relating to remote or machine-based gambling, as well as other approaches such as training for staff to identify and respond to relevant behavioural patterns.*"

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Ultimately, this research has been undertaken in the spirit of addressing RGSB's call to energise a culture of trial and evaluation of harm minimisation strategies in the British gambling industry, even in the absence of having perfect knowledge (see point 99, p.35):

> *"Action has to take place in a measured way, but at pace; and we need to experiment, evaluate and monitor progress regularly so that as change happens it is possible to reflect and learn about what is and is not working and implementation can respond flexibly and appropriately."*

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4 METHOD

4.1 METHODOLOGICAL APPROACH

Grounded theory is the most commonly applied qualitative research method, and it is one of the more systematic approaches to qualitative research available (Strauss & Corbin, 2008). Grounded theory provides a systematic and flexible approach for the collection and analysis of data to develop theory that emerges from iterative engagement and grounding in the data (Charmaz, 2006). Grounded theory can be generated via a range of approaches, but within the current study Systematic Grounded Theory (Corbin & Strauss, 2008), has been applied.

4.1.1 What type of knowledge does Grounded Theory research produce?

The purpose of grounded theory is to generate new ideas and theories from the data (Willig, 2008), via carefully breaking down the data and identifying and explaining the underlying behavioural processes. The new theories proposed in grounded theory do not emerge from testing pre-determined ideas or hypotheses; rather they emerge from careful observation and exploration of the data. This provides flexibility for the researchers as they do not need to be 'handcuffed' to only exploring the concepts and ideas that are presumed to be relevant. Instead the researchers can identify unanticipated ideas and concepts, and develop and refine these as they emerge via the grounded theory method.

4.1.2 What is the value of the Grounded Theory produced?

The grounded theory produced provides a framework of hypotheses, or *propositions*, that account for observed patterns of behaviour (Strauss & Corbin, 1998). Fundamentally, a grounded theory methodological approach will provide a set of well-developed concepts and their relationships that constitute and explain the phenomena under investigation (Strauss & Corbin, 1998). In other words, after systematic analysis of available data several propositions will emerge that attempt to explain observed patterns of problematic remote gambling behaviour. At this stage, the propositions have not been validated, as validation requires study replication and empirical testing. However, the propositions put forward from the study provide an excellent foundation to a) identify what appear to be the key patterns of problematic remote gambling behaviour that need to be addressed and b) identify the specific, individual variables (i.e. gambling actions, game characteristics, environmental characteristics) to address that are related to problematic patterns of remote gambling. Essentially, grounded theory aims to produce an overview of the behavioural processes that are relevant to the phenomenon under investigation, which in this case is disordered and harmful patterns of behaviour in remote gambling. This method is particularly applicable to areas of research where there is minimal existing theory available to help explain behaviour, and this is the case with respect to understanding the causes of disordered gambling behaviour in remote settings. Ultimately, given theory relating to disordered gambling online in still in its infancy, it is challenging to identify the important research questions to address in research beyond simply making estimations and assumptions.

4.1.3 Overview of Analytical Steps

Theory develops within this method through breaking down data and recombining the data to represent the patterns observed in a more comprehensible and meaningful structure (Sutcliffe, 2016). This is achieved via a three-level coding process (Open, Axial and

Selective), which eventually refines and deepens the emerging concepts, and ultimately produces a coherent explanation of the observed data. Table 3 provides a summary of the various stages of analysis within the grounded theory method.

TABLE 3. SUMMARY OF STAGES OF GROUNDED THEORY ANALYSIS

Stage	Explanation
Selecting a Research Site	This stage is to identify an environment where the researchers will observe data. The parameters of the site are described in detail to allow readers to consider the representativeness of the site, in terms of whether it is a suitable site to understand the phenomena under investigation.
Initial Sampling	Later in the analysis, *who to sample* will be informed by the emerging findings of the study i.e. theoretical sampling. However, before data can be analysed to produce findings, an initial group of individuals must be selected as a starting to point. The objective is to start with those individuals who are likely to be of high relevance to the study and therefore likely to produce rich data.
Open Coding	Coding refers to the process of labelling and describing the data observed. This first stage of coding simply refers to the process of breaking down the data and identifying individual behaviours in their basic forms. These individual behaviours identified via open coding provide the building blocks that will be developed to produce an overall theory that explains the observed data.
Axial Coding	This stage is about finding the interrelationships between individual behaviours and variables. Axial coding shows the linkage between individual variables, and attempts to identify the sequence of the behavioural process.
Constant Comparison	This stage aims to refine the emerging relationships between variables by repeatedly looking for similarity and variation in new data. By seeing the proposed relationship in new contexts and situations, a clearer understanding of the link between the behaviours and other variables will develop.
Theoretical Sampling	This stage of sampling is driven by the concepts and relationships that are coming out of the data. Theoretical sampling is about selecting further participants that are likely to help develop understanding of the emerging findings, by providing further examples of data to compare the emerging findings against.
Selective Coding	This stage is about narrowing the focus of the analysis. As analysis was initiated without predetermined areas of focus, the findings will be very broad. At the selective coding stage, it is possible to select the findings that are most relevant and central to the specific objectives of the research. By narrowing the focus of analysis to a few core concepts, clearer and more valuable theory will emerge.
Theoretical Saturation	This stage marks the end of the analytical process. Saturation is reached when the researcher judges that no new concepts and ideas are emerging from new data, and therefore accepts that the most salient aspects of the theory have been captured.

4.2   RESEARCH PROCEDURE

4.2.1   Graphical Overview of Sampling and Analysis Procedure

The grounded theory research procedure is not simplistic; particularly as it requires substantial iteration for theory to emerge. Grounded theory does not follow a linear path from initiation to saturation, rather the research team are required to move back and forth

between different stages. Figure 1 below provides an overview of the sampling and analytical procedures of the current study.
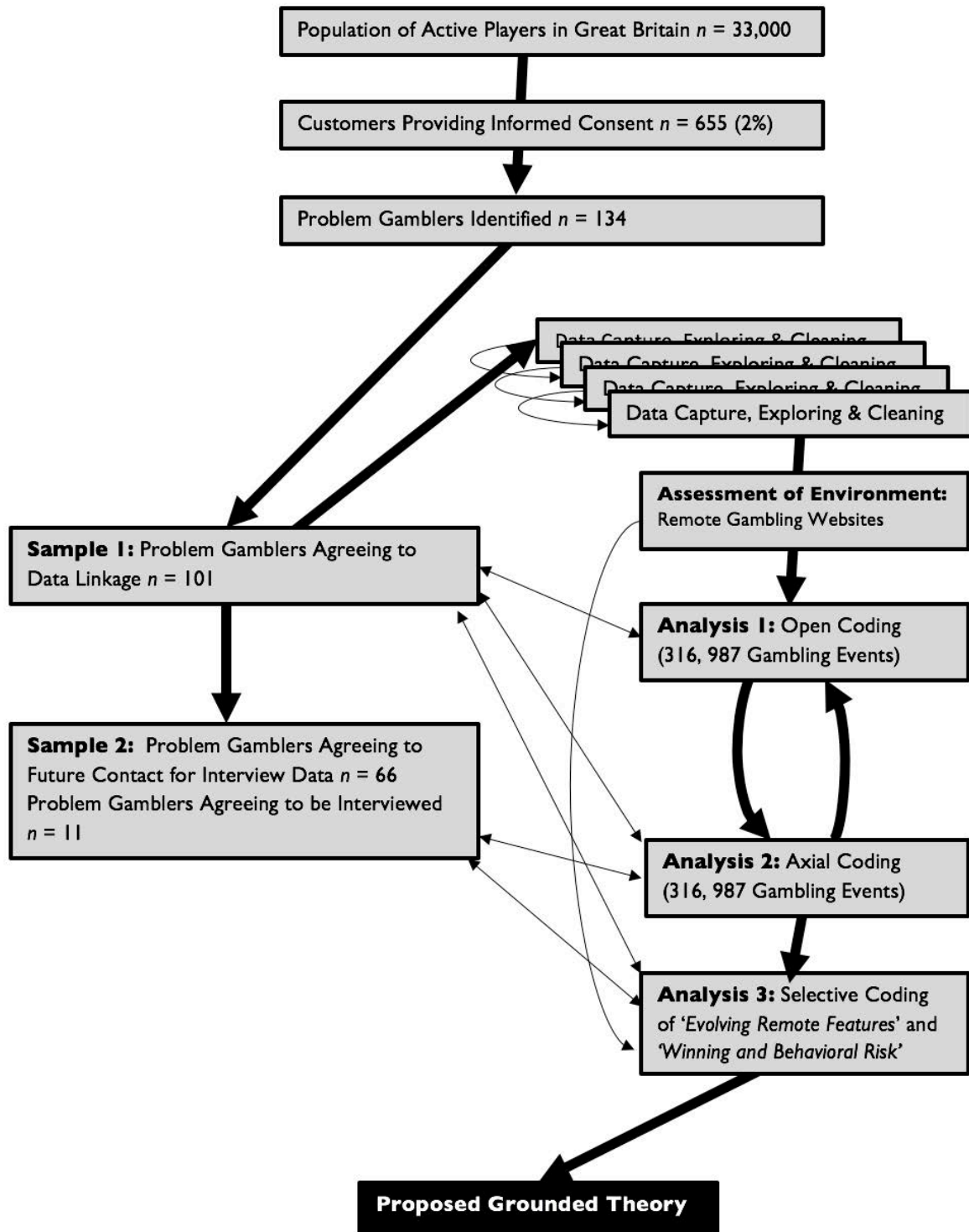

FIGURE 1. GRAPHICAL OVERVIEW OF SAMPLING AND ANALYSIS PROCEDURE

4.3   SELECTING THE RESEARCH SITE

The initial stage of any grounded theory study is to identify a 'problem' in general terms, and select a 'site' where that problem could be studied (Dey, 1999). The focus of this study was to investigate and understand patterns of problematic play in remote gambling settings. Therefore, the site chosen in which to investigate this problem was a remote gambling operator (Unibet Plc) that operated within Great Britain and had a large customer base, and offered a variety of gambling products. More specifically, the site selected in which to commence data collection offered four primary forms of online gambling including Sports Betting, Poker Gambling, Casino Gambling and Bingo products. The site selected had a long population of current remote gamblers who were located within Great Britain.

4.3.1   Survey and Pool Development

The aim of this project was to explore in depth gambling patterns of British problem gamblers who were Unibet account holders. To achieve this, we first needed to identify problem gamblers among Unibet customers so that, with permission, we could examine their behavioural data. This was achieved by conducting a web-based questionnaire of all active Unibet customers residing in Great Britain in December 2015. The survey included a problem gambling screen (Problem Gambling Severity Index, Ferris & Wynne, 2001) which identified those customers who were most likely to be problem gamblers.

Access to a population of 33,000 of active British Unibet customers was provided by the Unibet team. This included all British-based Unibet account holders who had some gambling activity on their Unibet account between July and September 2015 and had agreed that Unibet could contact them. Invites to survey were sent in two ways. First, an invite was posted on the 'my account/messages' section for each account holder. In doing so, the customer logged onto their account, and received a message asking them to take part in a short survey. Second, for those who agreed to being contacted by email, an invite with the web survey link was sent to their email address. Up to two reminders were sent, using both methods, to encourage participation. The survey ran from December 15 2015 to January 11 2016, with reminders being sent on December 18 and December 26 2015.

The survey included the following questions: Past year participation in all forms of gambling; Number of online accounts held and frequency of use of Unibet account; Problem Gambling Severity Index (PGSI); Demographics; Data linkage (whether permission was given to review Unibet behavioural records); Agreement to take part in future research; Signposting for help and whether they wanted responsible gambling information from Unibet.

TABLE 4. OVERVIEW OF ACHIEVED SAMPLE SIZES

	Target number	Achieved number
Issued sample	n/a	33,000
Responded to the survey	n/a	655
Problem gamblers identified	c.150	134
Problem gamblers who agreed data linkage	100	101
Problem gamblers who agreed data linkage and to participate in future research	60	66

All questions used were either standard questions adapted from previous studies exploring problem gambling (past year gambling; the PGSI screen; demographic variables) or were created especially for this study and carefully reviewed by the research team for comprehension and accuracy. To encourage participation, the survey was purposefully

designed to be short (taking an estimated five minutes to complete) and aimed only to collect key information for study inclusion: namely obtaining information about problem gambling status and gaining agreement to share Unibet behavioural data with the research team.

Table 4 shows that 655, out of the 33,000 customers invited, participated in the survey. This represents a response rate of less than 2%. The findings of this study should not be viewed as representative of all Unibet active customers, nor were they intended to be. The primary objective for this element of the study was to recruit approximately 100 problem gamblers who would give us permission to analyse their online gambling behavioural data. For this reason, the survey findings for all respondents were not reported, but instead the socio-demographic profile of the 101 problem gamblers who now form the 'site' in which grounded theory was conducted. In total, 66 of these 101 participants agreed to be contacted regarding interview participation, of which 11 ultimately participated in the interview. A summary of demographic, behavioural and demographical characteristics of participants is included in Table 8.

4.3.2   The 'Site' Selected (Profile of Problem Gamblers)

TABLE 5. SOCIO-DEMOGRAPHIC AND ECONOMIC PROFILE OF PROBLEM GAMBLERS WHO AGREED DATA LINKAGE

Variable	N	%
Gender		
Male	84	83
Female	17	16
Age		
18-24	10	10
25-34	49	49
35-44	21	21
45-54	14	14
55 and over	2	2
Age unknown	5	5
Marital status		
Single, never married	56	55
Married	29	29
Separated	3	3
Divorced	6	6
In a civil partnership	3	3
Surviving partner from a civil partnership	1	1
Marital status unknown	3	3
Ethnicity		
White/White British	87	86
Asian/Asian British	4	4
Black/Black British	1	1
Chinese	1	1
Other	8	8
Economic activity		
Working as an employee (or temporarily away)	61	61
On a government sponsored training scheme	1	1
Self-employed or freelance	9	9
Retired	2	2
A student	4	4
Looking after the home or family	2	2
Long-term sick or disabled	15	15
Unemployed	6	6

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This section outlines the socio-demographic profile of problem gamblers who agreed to data linkage. This information is presented to provide an overview of the research site where grounded theory will be conducted. Table 5 shows that the typical profile of our sample of problem gamblers was generally male, aged under 35, single, of White/White British ethnic origin (though those from minority ethnic groups were over-represented compared with the general population profile of Great Britain), and in paid employment.

Table 6 shows the other (non-remote) forms of gambling activity that the problem gamblers engaged in and how many other forms of gambling they undertook in the past 12 months. Two thirds of problem gamblers had purchased tickets for the National Lottery Draw in the past year (66%) and 63% had also placed bets at bookmakers. Over half (60% and 55%) respectively had played fruit/slot machines and B2 machines in a bookmakers in the past year. Looking at the number of non-online gambling activities undertaken, over 75% had taken part in at least three other forms of gambling in the past year, with 24% taking part in seven or more. This suggests that this sample of Unibet problem gamblers were also highly engaged in non-online gambling activity. Only 4% of problem gamblers had not taken part in offline gambling activity in the past year.

TABLE 6. PAST YEAR GAMBLING ENGAGEMENT AMONG PROBLEM GAMBLERS WHO AGREED DATA LINKAGE

Gambling Activity	N	%*
National Lottery	60	66
Scratchcards	61	65
Other lotteries	28	34
Football pools	27	31
Bingo (not online)	29	35
Table games at a casino	45	52
Machine's in a bookmakers	46	55
Fruit/slot machines	50	60
Bet at a bookmakers (not online)	54	63
Spread-bet	18	23
Privately bet/gambled with family/friends	42	52
Number of gambling activities undertaken in past year		
None	4	4
1-2	22	22
3-4	27	27
5-6	24	24
7-8	17	17
9 or more	7	7

Percentages presented are based on the responding sample to each activity. Base sizes vary from 95 to 81 problem gamblers per activity.

Table 7 shows the number of online accounts held by problem gamblers and their frequency of using their Unibet account when gambling online. As can be seen, most problem gamblers had more than one online account, with over half having at least four different online accounts. Approximately half of the sample (46%) problem gamblers reported that they used Unibet most of the time when they gambled remotely. For these participants, we can be reasonably confident that their Unibet account data shows a significant amount of their online gambling activity. However, 7% of problem gamblers said that they rarely or never used their Unibet account. The research team were also interested in investigating the patterns of problem gambling within individual gambling sessions, in addition to looking for

longer term patterns across multiple sessions. Therefore, it is important to note that the data provided by participants who did not solely gamble online with Unibet was still valuable and available for the analysis of problematic gambling patterns in sessional play.

TABLE 7. NUMBER OF ONLINE ACCOUNTS AND FREQUENCY OF USE OF UNIBET AMONG PROBLEM GAMBLERS WHO AGREED DATA LINKAGE

Number of online accounts	N	%*
1	13	13
2	10	10
3	15	15
4	18	18
5	8	8
6	36	36
*Frequency of using Unibet when gambling online**		
Always	21	24
Most of the time	19	22
Some of the time	42	48
Rarely/Never	6	7

Percentages are based on the responding sample to this question (n = 88)

4.3.3 Initial Sampling within the Selected Site

It is important to recognise that the selection of a research site, by identifying 101 potential problem gamblers to observe, did not represent the sampling procedure of this grounded theory study. The generation of a pool of 101 problem gamblers from Unibet's British customer base was solely to enable efficiency in data collection as the study progressed. In simple terms, rather than needing Unibet operators to identify, gain ethical consent from, and provide behavioural data for individuals sporadically across the entire data collection period, a pool of 101 potential participants was created for the research team to sample from as required and directed during the theoretical sampling stages.

Most grounded theory studies are relatively restricted regarding the level and accuracy of data that can be collected; this is primarily because they are dependent on qualitative interview data to provide behavioural information (Charmaz, 2014). The benefit of the current study was that data capturing exactly how the players behaved, rather than how they say they behaved, was utilised. A wide range of behavioural variables and an extensive amount of data for each variable was provided by Unibet.

Like a traditional grounded theory study, we were open and willing to follow any theoretical directions that emerged through the stages coding and constant comparison. As a starting point to commence open coding, the research team began by coding the behavioural data of the participants in the pool that primarily used Unibet when gambling online. In addition, it was determined that at this initial stage of open coding it was important to sample from a diverse range of participants who gambled on different forms of gambling activities (Sports Betting, Bingo, Poker and Casino Games).

After coding and analysing the initial participants' behavioural data, subsequent sampling was governed by theoretical relevance (Dey, 1999). In other words, sampling decisions were based on the capacity of new participants to contribute to the development of emerging theory (Glaser & Strauss, 1967). New cases were selected to contrast emerging theory against, by providing new interesting contexts to further refine emerging theory (Dey, 1999).

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TABLE 8. PARTICIPANT CHARACTERISTICS FOR THOSE AGREEING TO DATA ANALYSIS (N = 101)

Part. ID	Age	Gender	Total Staked at Unibet (GBP, 12 months)	Total Losses at Unibet (Preceding 12 months)	Interview Participation	Number of Remote Gambling Accounts	PGSI Score
1	47	Male	522.87	15.89		3	12
2	30	Male	4472.45	310	YES	2	25
3	24	Male	40372.63	338.15		6	9
4	35	Male	1069.16	-102.27		6	9
5	45	Female	105646.57	7100.83		1	17
6	34	Male	6205.01	967.22		3	26
7	37	Male	2368.18	127.53	YES	6	8
8	30	Male	33.16	0.05		6	18
9	31	Male	496.25	17.09		1	27
10	22	Male	735.72	141.88		5	18
11	45	Male	190.72	-0.68		4	11
12	28	Male	537.7	19.43		6	18
13	29	Male	1643.08	-928.04		4	9
14	29	Female	3977.22	300.3		6	14
15	25	Male	12495.12	210.06		2	11
16	40	Male	578.88	23.96		6	8
17	30	Male	2274.92	281.08		3	10
18	26	Male	49911.09	4737.84		3	21
19	36	Male	3993.88	500.2	YES	6	18
20	28	Female	38356.7	3803.4		5	12
21	40	Male	68.46	19.21		4	8
22	27	Male	200751.57	7768.8		1	8
23	32	Male	326933.37	5114.93		2	10
24	23	Male	22435.22	2312.35		3	21
25	29	Female	17385.71	75.99		6	22
26	34	Male	3146.65	-112	YES	6	12
27	31	Male	190.56	15.85		5	19
28	34	Male	38742.21	7994.3		1	9
29	40	Male	112788.66	3077.01		2	21
30	30	Female	21829.82	2623.01		6	21
31	29	Male	542.73	74.41	YES	6	13
32	28	Male	2705.28	93.37		3	8
33	35	Male	83923.82	-60		6	15
34	25	Male	60.63	1.32		4	17
35	31	Male	128363.31	4511.49		4	16
36	40	Male	52181.97	1203.65		2	13
37	34	Male	96845.01	2234.97		3	15
38	27	Male	49.16	13.87		2	26
39	27	Male	985.27	74.73		6	16
40	31	Male	12.56	0		3	12
41	31	Male	31753.1	1578.85		6	9
42	34	Male	171.34	30.9	YES	6	20
43	36	Male	563.05	-677.92	YES	6	8
44	36	Male	83307.46	2462.93		3	15
45	27	Male	15201.08	1178.81		3	26
46	43	Male	489.1	170		6	12
47	50	Male	29149.06	1104.29		5	8
48	29	Female	521.93	29.44		1	16
49	22	Male	412111.12	5774.38		3	14
50	42	Male	262.8	49.37		6	8

Part. ID	Age	Gender	Total Staked at Unibet (GBP, 12 months)	Total Losses at Unibet (Preceding 12 months)	Interview Participation	Number of Remote Gambling Accounts	PGSI Score
51	30	Male	3146.96	4.39		3	9
52	41	Male	145.9	-14.07		6	8
53	27	Male	4470.68	-174.92		1	16
54	35	Male	7305.08	1226.59		6	10
55	45	Female	85176.73	4581.56		5	11
56	35	Male	264012.98	10657.75		2	15
57	46	Male	8497.71	94.07		3	10
58	33	Female	2462.47	169.71		6	18
59	48	Female	1266.51	5.08		5	9
60	32	Female	1901.6	29.7		6	16
61	29	Female	6843.74	331.12		6	15
62	34	Female	4344.76	25.02	YES	6	9
63	36	Female	1327.78	0.82		6	11
64	37	Female	5283.62	-425.51		6	13
65	43	Female	12019.27	1209.65		5	12
66	46	Male	75762.17	3049.56		4	11
67	27	Male	178067.7	9404.17		1	23
68	64	Male	69897.09	1375.88		1	8
69	25	Male	240.85	70.06		6	8
70	27	Male	9366.17	111.36		6	24
71	31	Male	13239.73	759.14		6	15
72	29	Female	148011.92	9033.28		4	9
73	51	Male	120927.21	6439.75		2	8
74	30	Male	34783.53	828.43		6	16
75	36	Male	2110.7	87.25		1	12
76	27	Male	2858.8	84		4	10
77	35	Male	13904.32	1601.15		3	10
78	21	Male	1209.54	256.95		4	18
79	49	Male	78986.02	663.77	YES	4	23
80	28	Male	3516.51	267.61		1	12
81	38	Male	11297.69	1379.92		2	23
82	27	Male	55	13.75		2	8
83	30	Male	2940.52	-1117.23		6	27
84	66	Male	3065.21	48.89		4	18
85	51	Male	2188	499.19	YES	4	12
86	39	Male	1546.82	208.5		4	8
87	24	Male	1140.11	344.97		6	11
88	47	Male	6236.37	2531		6	8
89	50	Male	5031.08	327.59		4	15
90	28	Male	487.76	136.57	YES	6	12
91	27	Male	9129.06	279.5		4	17
92	18	Male	1800.52	-40		4	13
93	21	Male	1299.64	106.39		1	20
94	30	Male	331.67	39.75		6	19
95	24	Male	3156.68	146.31		3	14
96	23	Female	21414.09	1744.31		1	13
97	49	Male	155.75	7.24		4	8
98	24	Male	101.49	0.66		4	13
99	34	Male	14364.57	2828.76		3	13
100	27	Male	1265.62	-27.85		1	18
101	31	Male	194	54.2		5	15

4.4   AVAILABLE BEHAVIOURAL DATA

4.4.1   Assessment of Data Availability

Consistent with expectations in grounded theory research, the governing principle of data collection was that '*all is data*'. Therefore, all possible gambling-related variables were of potential interest. These included, but were not limited to gambling-related variables such as: gambling transactions, behaviours, preferences, communications and outcomes. All nominated variables were crosschecked with Unibet with regards to availability in terms of extraction and sharing.

4.4.2   Assessment of Data Integrity

The next stage of this assessment process was to request examples of behavioural data from Unibet to examine the format and the integrity of the data provided. We examined inconsistencies or missing data; achieved via crosschecking different file formats expressing the same information. For example, data regarding total net expenditure of a participant in a *daily summary file* should equate to the sum of the staking and wins of a more detailed spreadsheet detailing bet transactions for that day. Any errors or inconsistencies in the presentation of data were highlighted and solutions were subsequently developed in partnership with Unibet.

4.4.3   Data Collection Format

Following eight iterations of interrogating data files, the research team agreed that for each of the 101 problem gamblers in the study, the following data would be collected as an initial starting point:

1. Daily total expenditure and daily net expenditure for each product/sub-product;
2. Detailed records of transactions on a line-by-line basis capturing information such as bet selection, bet outcome, bet type, date, time, stake size, win size, running balance, game type;
3. Communication between the participant and customer services and;
4. Interaction with responsible gambling tools or responsible gambling staff.

Importantly, given that patterns were being examined in context, and in sequence, it was imperative that data were provided precisely in chronological order. Such precision initially proved challenging, however, through an iterative process liaising and checking with the industry partner this was achieved.

4.4.4   Data Collection Time-Period

The data collected corresponded to activity recorded between September 01 2015 and November 30 2015. In total, data collection has yielded 606 files of gambling behavioural data for analysis, with some files having as many as 30,000 individual gambling-related events[3].

4.4.5   Analysis of Gambling Behaviour

The first stage of data analysis related to coding of the behavioural data of the initial sample of problem gamblers drawn from the participant pool. The initial sample drawn from the pool consisted of those participants who were more likely to provide the richest source of

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[3] *The term 'gambling-related events' in this research refers to distinct occurrences including placing bets, settling bets and account transactions – each of which represented a line of data and had a transaction code and time stamp.*

data. At this initial sampling stage before emergent concepts could be used to engage in theoretical sampling, the researchers attempted to categorise participants to cover the range of primary gambling preferences; namely Sports Bettors, Casino Game Gamblers, Bingo Players, and Poker Players. From the initial participant pool, it was evident that in contrast to casino and sports bettors, only a handful of participants were primarily poker players or bingo players. Furthermore, it was not possible to separate participants into strict categories because for many participants, behaviour was highly varied. For example, a participant who gambles approximately 90% of the time on sports betting may also be one of the most frequent bingo gamblers. It must be noted that it was common across participants to engage in multiple gambling types, despite there often being a primary gambling preference during the specified data collection period.

The coding of the behavioural data at the initial sampling stage is fundamentally about carefully combing through the data at very simplistic level, looking for meaningful patterns of behaviour to emerge, and aiming to identify the properties of these concepts and how they interrelate, accounting for the observed behaviour (Dey, 1999). In simple terms, the online gambling behaviour is broken down to its most basic level in open coding, and through axial coding, it is *put back together* to provide a summative explanation and account of what is happening within the raw data.

4.4.6   Open Coding

In the initial stages of coding, a very open approach to the data was undertaken to enable the detection of as many codes i.e. behaviours, as possible (Glaser, 1992). Essentially, having identified a site, in this case *patterns of problematic remote gambling behaviour*, the first task was to identify categories which capture uniformity in the data (Dey, 1999). In other words, the analyst is seeking to identify important and salient behaviours in the raw data, and begin putting them into meaningful clusters referred to as *categories*.

In practical terms, open coding in this study involved the researchers analysing the behavioural data line by line, for each case, in a sequential manner, starting with the first available gambling behaviour and ending with the last behaviour within the pre-determined observation period of September 1 2015 and November 30 2015. Line by line analysis of the numerical behavioural data refers to the researchers systematically following the chronological sequence of individual gambling behaviours of a participant in a three-month period[4]. By taking this approach the researchers could observe the complex relationships of individual gambling behaviours by interpreting the individual events in relation to the full context of behaviour i.e. the antecedents and consequential behaviours. More simplistically, by observing the sequential order of the problem gamblers behaviour (rather than considering them in isolation) it was possible to propose possible explanatory mechanisms and risk factors that may account for the subsequent problematic patterns of play.

The amount of gambling behaviour observed within each case was variable and inconsistent. Some participants gambled daily and consistently, whereas other participants gambled sporadically, in periods of intense and high frequency gambling. Ultimately, even within individual cases there was wide variance in patterns of gambling in terms of frequency and duration.

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[4] *Essentially, this approach contrasts with quantitative analytical approaches that prioritise precise measurement and statistical assessment rather than placing emphasis on the contextual process when making interpretations.*

In the initial stages of open coding, the codes and subsequent clusters of codes (i.e., categories) were largely descriptive, and this was because they were identified as discrete behaviours, rather than placed within the context of their related behaviours (Willig, 2008). However, as the analysis moved into axial coding, the relationships and properties of the open codes emerged, and from this contextualised framework a more analytical understanding of the behavioural processes emerged.

4.4.7 Axial Coding and Constant Comparison

Essentially, axial coding is engaged in to develop the initial codes that emerged via open coding, with the focus being on illuminating the categories of behaviour observed and their underlying relationships (Cruickshank et al, 2014). The basic relationships between the observed behaviours are tentatively identified at this stage of analysis, with the researchers attempting to identify how the relationship between the behaviours varies across different conditions. Ultimately, this is achieved via a process of constant comparison, where the researchers directly and recursively compared similar behavioural processes in different conditions and contexts, and across individual cases. To provide a more detailed and informative understanding of the behavioural processes of interest, the researchers identified variation in the behavioural processes specific to certain events and contexts. In practical terms for this specific study, the researchers looked at the open codes and noted linked behaviours to identify basic *behavioural processes*. After these early and tentative behavioural processes emerged, the researchers directly compared similar processes across different contexts, such as gambling activity preferences, gambling outcomes and time periods. From this process of constant comparison, the researchers could tentatively identify properties and interrelationships between various gambling behaviours.

4.4.8 Theoretical Sampling and Constant Comparison

It is widely accepted that the analytical process in grounded theory is not linear with the researchers moving sequentially through the various stages of analysis (Charmaz, 2006; Strauss & Corbin, 1998). In contrast, Sutcliffe (2016) argued that typically the researcher works recursively, in a spiral format, oscillating between open and axial coding, developing the emergent behavioural processes as analysis progresses via constant comparison.

Having engaged in open and axial coding analysis with the initial selection of participants, it was then incumbent on the researchers to follow the emergent concepts, and identify further sites, contexts or participants that may assist further elaboration and illumination via comparison (Corbin & Holt, 2005). Glaser and Strauss (1967) outlined that beyond identifying an initial research site (in our case *problem gamblers within an online gambling setting*), further data collection and analysis cannot be engaged in without emerging theory. Essentially, the emerging theory from open and axial coding analysis is used to direct further sampling, with an explicit focus on developing the emergent theory further (Glaser & Strauss, 1967).

The primary and sole focus of theoretical sampling is to obtain further data sources that offer interesting comparisons for the emerging theory from the earlier stages of data analysis (Dey, 1999). In practical terms, the researchers could theoretically sample a long amount of further behavioural data from the participant pool for comparison, to assist in developing and refining the emergent theory. During theoretical sampling, the researchers requested further behavioural data for specific participants where relevant. For example, where theoretically relevant, behavioural data outside of the specified three-month

observation period were requested for some participants, to help further refine some emergent behavioural processes.

4.4.9   Selective Coding and Theoretical Saturation

Selective coding refers to the emergence of patterns in the data which suggest a reduction in the number of behavioural processes (Glaser, 1992), in order to allow the most relevant behavioural processes to become substantive (Knott et al, 2012). The purpose of applied and pragmatic research, such as the current study, is that the findings should make a difference to the group being researched. Findings should develop understanding of how core behavioural processes work in real world contexts, rather than be used as a definitive representation of all observed behaviours (Corbin & Strauss, 2008). One of the primary criteria on which to evaluate the quality of a grounded theory, is to determine its *relevance* to the key question that has driven the investigation (Holton et al, 2008). After extensive open and axial coding the research team made *relevancy judgements* at this stage, regarding the most appropriate behavioural categories to select for further elaboration. This analytical process of continually narrowing and deepening the level and scope of analysis is what enables the production of a coherent, and practically meaningful theory, which can account for the behaviour observed within the raw data (Sutcliffe, 2016).

For the current report, the researchers selected the following category for further analysis within the selective coding stage: Evolving Features in Remote Gambling including structural changes to game-play and monetary transactions between the player and the operator. In practical terms, selective coding refers to revisiting these processes with more analytical focus, therefore making it possible to develop their properties further to help explain behaviour at a more meaningful level (Sutcliffe, 2016). Selective coding analysis of the behavioural data continued until it reached a comprehensive point i.e. theoretical saturation, where no new properties or dimensions of the selected processes emerged (Holton, 2010). Theoretical saturation does not mean that no new concepts emerged within new data, as new concepts will continually emerge; rather it refers to the lack of further development of the selected areas of focus in response to new data (Marks et al., 2016).

4.5   INTERVIEW DATA

In their initial proposal of grounded theory, Glaser and Strauss (1967) emphasised the value of analysing multiple forms of data, to bring as much depth to the emergent theory as possible. In the current study, the wealth of behavioural observations provided a strong foundation to develop and refine prospective theory regarding the patterns of problematic gambling behaviour in remote settings. Conducting interviews with the participants enabled the research team to develop the key behavioural processes alongside the cognitive perspectives, attitudes and experiences of the participants. The explanatory value of the theory emerging from the behavioural data was improved by integrating the participants' experiences outlined in the interview data.

4.5.1   Theoretical Sampling: Interview Data

As demonstrated in Figure 1, in total 66 of the online problem gamblers in the pool of 101 participants agreed to be contacted regarding participating in an interview study to discuss their attitudes towards and experiences of online gambling behaviour. In total, 11 of the 66 participants contacted provided informed consent and were interviewed (see Table 8 for a demographic, behavioural and clinical summary of interview participants). The primary focus of the interview data collection stage was to generate data relating to the cognitive experience of the core behavioural processes therefore, theoretical sampling of potential

interview participants commenced with those participants who had demonstrated engaging in the selected behavioural processes.

Participants who initially provided consent to be contacted regarding participation in the interviewing section of the study, were sent an email that outlined the requirements and objectives of the interview data collection process in much more detail, to enable the participant to make a fully informed decision whether they would like to participate in this section of the study. If the participant had not responded to the initial request to participate, a follow up email reminding the participant of the opportunity to take part in the study was sent out.

4.5.2   Interview Data Collection Approach

The interviews with the problem gamblers were collected via asynchronous computer-mediated communication (CMC). More specifically, the interviews with the participants were conducted remotely, via email exchange over an extended period. There are multiple significant research and practical benefits of conducting the interviews via asynchronous CMC in comparison to traditional face to face interviews (Opdenakker, 2006; Shapka et al, 2016). It is widely acknowledged that the anonymity provided within email based qualitative interviews often stimulates valuable levels of personal disclosure (Kennedy, 2000; Mann & Stewart, 2000; Tidwell & Walthier, 2002), and this is particularly relevant when discussing socially undesirable behaviour such as problem gambling. In fact, the anonymity created through internet mediated research can also eliminate some of the problems associated with face to face interviewing that can create participant discomfort and limit personal disclosure such as status and category-based differences between the interviewer and participant, for example age and ethnicity (Meho, 2006).

Furthermore, many argue that rapport can be readily achieved in asynchronous CMC interviews, because the additional time to reflect on the questions, and think deeply about the answer enables the participant to be more self-reflective and find the interview process more intrinsically rewarding (Adler & Zarchin, 2002; Kazmer & Xie, 2008; Shapka et al, 2016). Moreover, the provision of time to reflect on and prepare answers will clearly enhance the quality of answers that the participants are able and willing to provide (Mason & Ide, 2014; Murray, 2004; Opdenakker, 2006). In addition to the participants having an extended period to reflect before providing responses, interviewers are equally afforded time to prepare more insightful and probing follow-up questions (Bampton & Cowton, 2002; Kivits, 2005).

From a practical perspective, the participants were initially sent a list of basic stem questions that probed the participants' attitudes to and experiences of remote gambling in general, as well as stem questions relating more specifically to the key behavioural processes. Subsequently, the research team analysed and discussed the data as it was received, and follow up questions were developed to further probe the experiences raised by the participants. On average, each exchange within the interview consisted of approximately three to six follow up questions, for the participants to reflect on and eventually respond. In the clear majority of instances, participants responded with further answers and details, and there were multiple email exchanges per participant.

4.6   ETHICAL CONSIDERATIONS

The principles of research ethics put forward by the British Psychological Society were upheld, and this study received ethical clearance from the School of Psychology Research Ethics Committee (SOPREC) at the University of Lincoln[5].

4.6.1   Ensuring Data Privacy and Security

Large amounts of sensitive data had to be transferred securely and expediently between the industry partner and research team. Our agreed approach included the password protected transfer of files via a well-known file hosting service operated through cloud storage. To enhance security and privacy, customer IDs were not used as a research reference. Using an anonymous 15-character alphanumeric code, digital records for each case are referenced. Codes were generated during the survey stage of the research.
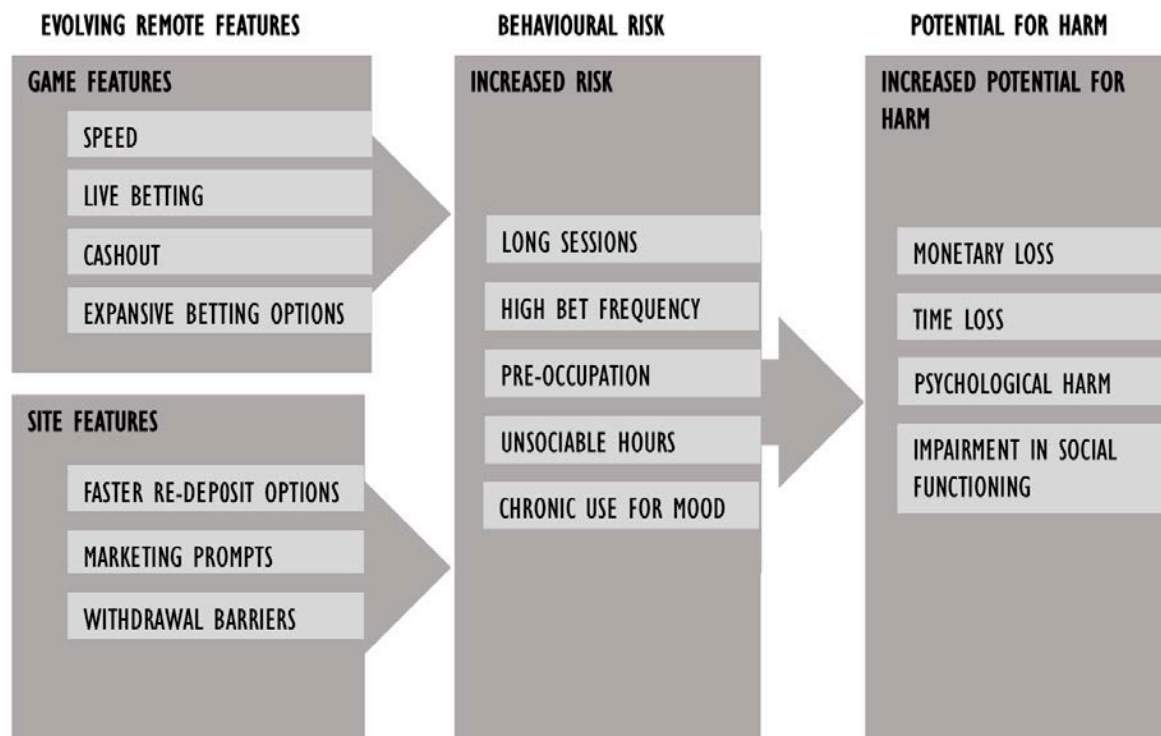
4.6.2   Participant Debrief

With respect to the asynchronous CMC interviews, participants were fully informed of the requirements of this part of the study and there was no deception of participants regarding the aims and objectives of the study. There was a high level of personal disclosure within the interview stage, as many participants provided highly self-reflective answers. As well as being potentially valuable to the participants to reflect and evaluate their behaviour (Adler & Zarchin, 2002), there was also the potential that taking part in this section of the study may have created discomfort within the participants as they closely examined their gambling behaviour. Throughout the study, participants were invited to contact the research team at any stage to discuss their participation or to seek direction regarding problem gambling and options for assistance. In addition, at the end of data collection for the interview stage, participants were contacted and thanked for their valuable contribution to the project, and they were reminded of the opportunity to request assistance and guidance regarding their gambling behaviour. Participants who requested guidance regarding their gambling behaviour would be sent detailed information regarding sources of assistance in terms of problem gambling helplines, problem gambling information websites and clinical and counselling services related to problem gambling. No participants requested assistance or support during the study.

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[5] *Ethical clearance reference number 092015*

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5   MODEL 1: EVOLVING REMOTE FEATURES

It is clear from observing the remote gambling setting of the data that there has been substantial development of environmental and structural characteristics within remote gambling; and that the development and expansion of specific remote gambling features have played a significant role in the behavioural patterns of problem gamblers observed within the study. Development of characteristics in remote gambling settings fall into two broad categories, namely, the features of a specific gambling activity and the features of the remote gambling site.

FIGURE 2. EVOLVING REMOTE FEATURES MODEL OF GAMBLING RISK

EVOLVING REMOTE FEATURES	BEHAVIOURAL RISK	POTENTIAL FOR HARM
GAME FEATURES SPEED LIVE BETTING CASHOUT EXPANSIVE BETTING OPTIONS	**INCREASED RISK** LONG SESSIONS HIGH BET FREQUENCY PRE-OCCUPATION UNSOCIABLE HOURS CHRONIC USE FOR MOOD	**INCREASED POTENTIAL FOR HARM** MONETARY LOSS TIME LOSS PSYCHOLOGICAL HARM IMPAIRMENT IN SOCIAL FUNCTIONING
SITE FEATURES FASTER RE-DEPOSIT OPTIONS MARKETING PROMPTS WITHDRAWAL BARRIERS		

5.1   EVOLVING GAME FEATURES

From the systematic analysis of observations, four features of remote gambling activities were consistently related with patterns of gambling behaviour for problem gamblers in this study. The first structural characteristic relating to patterns of problematic play is the *speed of play* available currently within remote gambling settings. The increasing level of rapidity that a gambler can engage when remote gambling may have potential customer benefits, such as, reducing the opportunity cost of time taken to place a bet. However, there is potential for the high rapidity and speed of activities in modern remote gambling to lead to problematic gambling behaviour, such as a reduction in behavioural evaluation because the lack of pauses within a specific gambling activity (see Sections: 5.4; 5.7).

In addition to the overall increasing speed of gambling activities within remote gambling settings, there have been significant developments to the structure of sports betting in remote settings. Essentially, the remote sports bettor is not restricted to placing bets before a sporting event has commenced, as they are now in many cases able to place bets during the sporting event. Again, there are potential benefits of this facility for a remote gambler, including the ability to make more informed betting selections and decisions by observing and evaluating a portion of the sporting event prior to risking any money.

However, the *live betting* feature also has potential to lead to problematic play, as for example, the feature can also facilitate the immediate chasing of recent losses (see Sections: 5.3; 5.4).

A recently developed remote sports betting feature that is closely associated with live betting opportunities is the facility on several sports bets to *cash out* before the event has finished. For many sporting events, particularly those that are high profile, remote operators will provide a monetary offering that a customer can choose to accept and cash out during the sporting event in relation to current value of the customer's original bet. Once the customer has selected to cash out their bet, the original bet is effectively cancelled and the customer provided with the monetary value that was offered by the operator for the cash out. If the customer's original bet is perceived to be likely to lose based on up-to-date information regarding the sporting event, the monetary offering will reflect this likelihood and be relatively low. However, if the customer's original bet appears likely to be a winner, the monetary offering will be relatively large and above the value of the original bet. In effect, a cash out offering by the operator for a customer's bet can be potentially profitable if it exceeds the original stake, or it can be a loss if the value offered is lower than the original stake.

Like the previously discussed features, there is potential for the cash out feature to have benefits to customers in terms responsible gambling, such as being afforded an opportunity to dispassionately *cut one's losses* and retain at least some of the original stake if the bet appears to have a high probability of losing. Conversely, and potentially counter-intuitively, the opportunity to cash out a bet before a sporting event finishes may also lead to increased risk for harm (see Sections: 5.3; 5.5).

The fourth key development in remote gambling that may lead to increased problematic play relates to the vast *expansion of available sports betting markets* that are available for customers in remote gambling settings. The vast expansion of available sports betting markets is likely to have improved the gambling experience for many customers because of the increased level of flexibility and choice (in terms of gambling preferences). However, potentially, the provision of substantially increased opportunities to engage in sports betting at any time of the day can facilitate problematic patterns of sports betting in terms of frequency and volume of participation (see Sections: 5.3; 5.5; 5.6).

5.2   SITE FEATURES

In addition to structural developments within remote gambling activities, there are also technological developments regarding the wider remote gambling site that have implications for patterns of gambling. As previously discussed, the speed of interaction within modern remote gambling activities has increased and has become almost instantaneous. However, it is also true that player interaction with wider components of the site have also increased including most notably the potential *speed of re-depositing funds*. Essentially, it has been observed that when a player reaches an empty gambling account balance that it is possible to deposit further funds and top up one's account balance within a handful of seconds. Throughout the analysis, it has been repeatedly observed that the problem gamblers can top up an empty account balance and place further bets within 60 seconds of placing their last bet that caused them to reach an empty account balance. Put simply, it was apparent that the problem gamblers within this study were virtually able to instantaneously re-deposit further funds and continue betting (see Section: 5.4).

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In contrast to the opportunity to instantaneously deposit further funds to continue gambling, it was apparent that the process with what one can withdraw funds is not nearly as expedient. Whereas the process to deposit further funds during a gambling session is rapid and clearly signposted and accessed within the remote gambling site, there appears to be significantly more impediments or *barriers to withdrawing funds*. That is not to propose that remote gambling customers are not permitted to withdraw funds at any point during the session. Rather that the mechanism is not as prominently available to player during the session, and that withdrawing funds from remote gambling sites require more effort than depositing funds. In addition, there is a facility to cancel, or 'reverse' your decision to withdraw funds from your gambling account. The mechanisms for depositing and withdrawing funds within a remote gambling site, should be largely comparable. All customers, and particularly problem gamblers, who have decided to withdraw all or a proportion of their gambling funds should be provided an expedient process in which to execute their decision (see Section: 5.3; 5.4).

One of the other prominent site features repeatedly observed to influence gambling behaviour within the sample was provision of *marketing prompts* in the form of monetary bonuses for gambling. It was evident within the analysis that players frequently returned to gambling after abnormally quiet periods of not gambling, when they were provided with a monetary bonus.

> *"If I stay away from certain sites for a few weeks they email me and offer me bigger bonuses. It's all to get you to deposit and then the am back to square 1…. Bookies normally email[sic] me but they bombard me. It's a way to keep you betting. It's not rite [sic] as it makes me bet more."* Participant 85, M, Age 51, PGSI=12

Furthermore, it was observed that there was a relatively short duration between the provision of a monetary bonus into a problem gambler's account and the initiation of a new gambling session, regardless of how long it was since the player was last active on the site (see Section: 5.5).

5.3   THEORETICAL CATEGORY 1: LONG SESSION LENGTH

One of the most prominent patterns observed within the data was the considerable duration of gambling sessions. The long duration of some remote gambling sessions is proposed to be propagated by an interaction of developing game and site features in remote gambling and player behaviour. It was not uncommon for the participants to frequently engage in gambling sessions that had a duration of more than 60 minutes. Indeed, on many occasions, the online problem gamblers engaged in sessions lasting beyond five consecutive hours. The observed Long Session Length of the problem gamblers within the study are explained as being primarily a result of the three theoretical propositions outlined below.

5.3.1   *Increased number of betting markets available for remote sports betting facilitates longer sessions for problem gamblers*

In the existing research literature, extensive session duration is frequently observed with respect to gambling activities that either have high event frequency, such as slot machines or casino table games, or are more strategic forms of gambling, such as poker. However, it was observed that long session duration of continuous gambling engagement was also

observed when participants were sports betting[6]. At face value, one would assume that sports betting participation would be more intermittent by default, because of the parameters of the available sporting events. Fundamentally, it was observed that a large proportion of the British based problem gamblers within the study did not confine their betting to British based events or even traditional sporting events across Europe.

With respect to remote gambling opportunities, there is unlimited access to sports betting, not just in terms of hours of operation but in the universal availability of sports betting opportunities 24 hours per day, every day. Whereas previously before internet technology, British sports gamblers were restricted to betting on British sporting markets or a limited selection of international, high profile sporting events such as the NFL. This has changed substantially, with most remote gambling operators offering the opportunity to gamble on more than 30 separate sports, including niche sports that receive limited coverage in British media such as handball and table tennis. The implication of the vast expansion of sports betting to include international markets effectively means that sports betting is available to British online gamblers late at night and across the early hours of the morning. It was commonly observed in the data for problem gamblers to place a large number of sports bets in relatively quick succession, and often over an extended period of time, and it appears that the almost unlimited opportunity to bet on sports at any time of day was a critical factor in facilitating this process.

Furthermore, it is likely that when sports betting, participants' betting selections would normally be based on existing or recently obtained knowledge, regarding a specific sporting event; and intuitively this also would reduce the frequency of sports betting sessions. However, for a large proportion of the participants this was not the case, as participants regularly engaged in sports betting sessions across a wide variety of sporting events. Given that sports betting outcomes are considered, to an extent, to be determined by skill in terms of the application of knowledge and insight to accurately predict outcomes, it would be reasonable to assume that betting on niche or semi-professional sporting events would be unappealing to British based remote gamblers. However, this was not the case for this cohort of problem gamblers, where frequent sports gamblers often gambled late at night and in the morning on rather obscure sporting events. Table 9, provides an example of a variety of obscure, niche and semi-professional sporting events that the cohort frequently bet on.

Such obscure sporting events are unlikely to receive exposure through mainstream media outlets in Great Britain, but it is relatively easy to access detailed information on which to base betting selections through the World Wide Web. In fact, online gambling operators often provide such information within their own website to assist players in making informed betting selections. Information provided within the website often includes basic historical and statistical data such as the recent previous results of the teams, or for example, a tennis player's performance on different playing surfaces. Furthermore, a large proportion of the bets placed by the problem gamblers within the study could be classified as *Over/Under bets*, where the probability of success was approximately 50-50[7]. Such *50-50 bets* could potentially be classified as being chance-based, in relative terms, in comparison to other forms of sports betting. Therefore, given the chance based nature of Over/Under

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[6] *It is important to note that sports betting sessions in this report refer specifically to a time period where the customer is actively engaged and interacting with the operator in placing bets/live bets and making cash out selections. Length of sports betting sessions has not been determined in relation to the length of time it takes until the bet is settled.*
[7] *Actual odds offered were less than 1/1 to enable small profit margins for the remote gambling operators.*

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sports betting, there is less requirement for the participants to have detailed knowledge of relatively obscure sporting events from non-traditional markets to have a reasonable opportunity of being successful with their betting selections.

TABLE 9. SCOPE AND OBSCURITY OF SPORTS BETS PLACED BY PARTICIPANTS

Participant ID	Sporting Event	Bet Type	Event Location	Time of Bet Placed
28	An Giang - PVF Vietnam: 3rd Division Soccer	Total Goals	Vietnam	10:12 am
28	Sparta Praha - Slovan Liberec: Under 19 Soccer	Total Goals 1st Half	Czech Republic	11:42am
28	Deportivo Malacateco – Marquense: National Soccer League	Total Goals by Home Team	Guatemala	9:28pm
44	Sesi-SP – Valinhos Country Club: Women's Volleyball	First to Win Point in Next Set	Brazil	11:00pm
44	Adelaide United - Brisbane Roar: A-League Under 21	Total Goals 1st Half	Australia	1:29am
15	Barangay Ginebra San Miguel - Rain or Shine Elasto Painters: Philippian Basketball	Total Points in Quarter	Philippines	11:35am
99	Portland Winterhawks - Prince Albert Raiders: Western Hockey League	Total Goals	Canada	11:19pm
99	Caldense-MG - Ypiranga-RS: Division 4 Soccer	Total Goals	Brazil	12:03am

A further motivation to continue to bet on sports through late evening and into the early hours of the morning is that often the obscure sporting event can be live streamed within the remote gambling site (see Figure 3 for example). Therefore, motivation to continue gambling is not reduced because the experience of sports betting is not diminished when the player does not have capacity to watch the event on terrestrial or subscription television. Put simply, the remote gambling operator will often screen an international sporting event on their website to allow customers to observe the match or event they have bet on, when the event is not available to customers via other media services.

For example, if a participant placed a bet on Deportiva Cuenca in the Ecuadorian Primera A soccer league at 2am it was possible to observe the game as it occurred via the live streaming facility provided by the remote gambling operator. Not only can this facility increase motivation to bet on the game as it enables more engagement with the event in terms of entertainment, but also the capacity to observe the game may be important to customers who may consider using the cash out facility or further live betting.

With respect to problematic patterns of problem gambling in remote settings, arguably with the opportunity to place bets on sporting events across the world regardless of the time of day, there is scope to suggest that this can facilitate the chasing of one's losses. Whereas previously, the sports bettor would be required to return home after closing hours until the betting shop re-opened the following day, and therefore providing sufficient time to pause and reflect on one's gambling behaviour, in contrast the remote gambler can immediately access further sporting events to bet on without being forced to pause. This point was articulated by several of the participants within the study, for example,

"I've never really touched casino or games but I have in the past gambled on sports that I haven't got a huge knowledge on such as ice hockey or baseball, often chasing odds to win back losses." Participant 2, M, Age 30, PGSI=25

Moreover, as discussed in Section 4.1, the advent of live betting can be perceived as increasing the value of customer experience, and may even provide opportunity for customers to make more informed gambling decisions if they choose to observe a portion of a sporting event before deciding to risk their money. However, live betting does create potential for players to gamble in problematic patterns that are significantly less available in terrestrial gambling outlets.
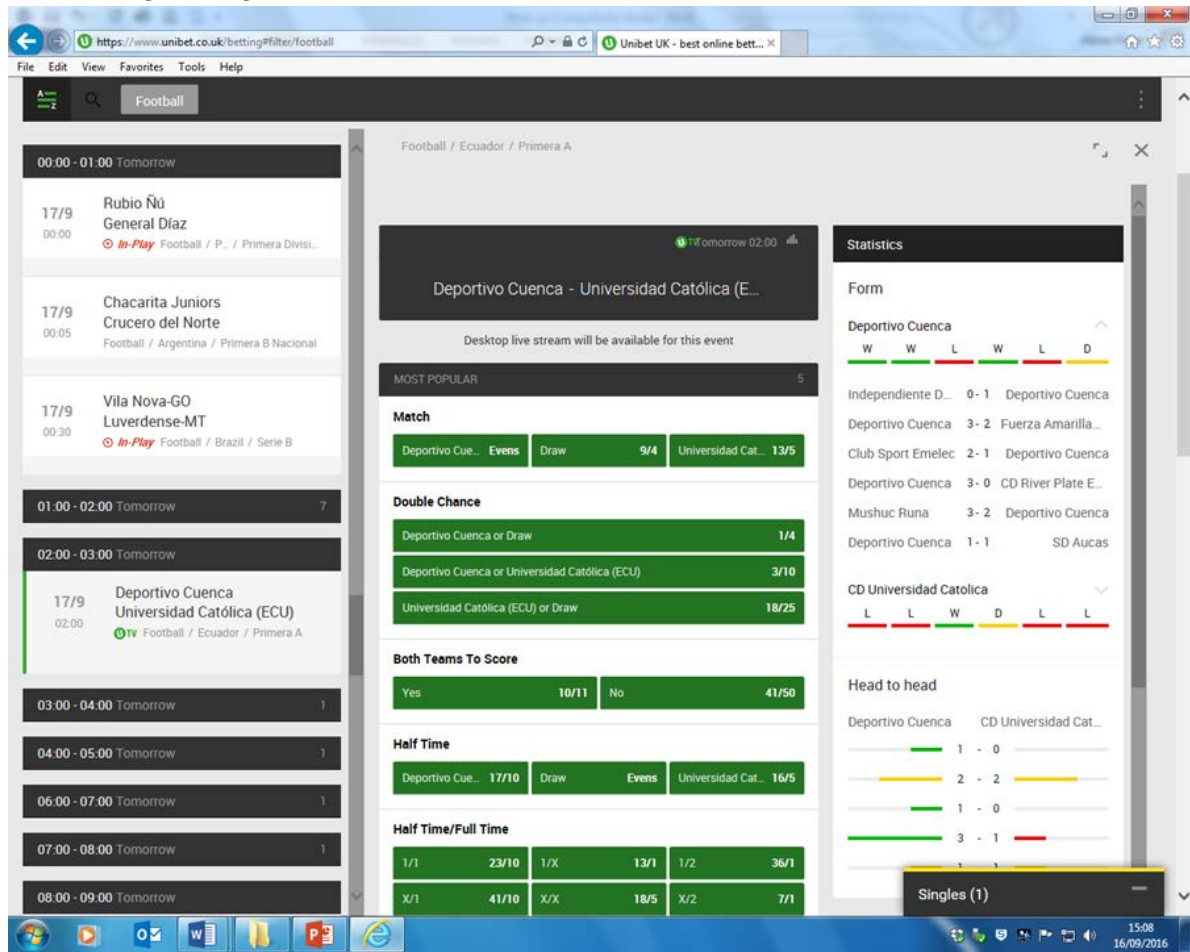
FIGURE 3. EXAMPLE OF THE PROVISION OF LIVE-STREAMING SERVICES FOR NON-TRADITIONAL SPORTING EVENTS AVAILABLE TO BRITISH BASED SPORTS BETTORS

Essentially, the constant provision of a wide array of live betting markets across many different sporting events, at any time of day, creates an opportunity for problem gamblers to persist gambling immediately after incurring losses. Effectively, the vastly increased opportunity to bet on sports can facilitate longer gambling sessions, particularly for those customers who have incurred losses and are motivated to try and chase such losses. Traditionally, with respect to sports betting in terrestrial gambling environments, a player was often forced to 'sit out' and pause from gambling until the next event commenced. Although this pause from gambling may only equate to a few minutes, nevertheless it provided some time to process the previous gambling loss and consider whether to persist in gambling despite the loss.

The experience of losing a bet can stimulate a state of high arousal and negative affective states including frustration, anger and worry, and these negative mood states may stimulate further engagement in gambling i.e. chasing losses, as one attempts to remove this uncomfortable experience. However, it is probable that if the player is not able to continue gambling immediately after incurring the loss, the negative emotions and high arousal will dissipate to some extent. Participant 90 illustrates this point with the following extract:

> *"[Online Gambling] allows players to make a lot of decisions in a very short space of time before they have had a chance to consider just how potentially damaging these decisions are, when things are going badly there is a strong temptation to ignore the negative sides in the hope that if you quickly bet big and add more in you'll end up make in [sic] profit and not have to deal with those negative feelings or ideas."* Participant 90, M, Age 28, PGSI=12

In behavioural terms, as demonstrated in Table 11, it is possible with live betting to gamble continuously within sports betting without being forced to pause, and this may impair the quality of decision-making when gambling. A core element of responsible gambling behaviour is having the discipline to 'cut your losses' after gambling and losing, and to accept the monetary loss and limit its impact on one's functioning and well-being. Arguably, the capacity for a gambler to maintain the discipline to accept incurred losses and inhibit the urge to persist in gambling is supported by the introduction of breaks-in-play. In remote gambling settings, sports bettors who engage in live betting are rarely, if at all, required to experience a break-in-play because there are many live-betting opportunities at any point, and these opportunities are often showcased on the front page of the website (See Appendix 1 for an illustration). Ostensibly, it is probable that to some extent the duration of a sports betting session is dependent on the scope of available opportunities to continue betting. Put more simplistically, the sustained availability of sports betting options can facilitate customers in placing more bets, as there is always something available to continue betting on, and in turn this can increase the length of sports betting sessions in remote in contrast to land-based settings.

Potential Harm Associated with Proposition 5.3.1:
- Extensive provision of live and obscure betting markets, available consistently at any time of day, can facilitate persistent gambling in the face of incurred losses, which may lead to increased total monetary loss as length of session increases.
- Prolonged sports betting sessions, on average, led to larger total expenditure and larger net losses
- Prolonged sports betting sessions, on average, led to increased opportunity cost in terms of time spent gambling
- Increased opportunity cost of time spent, and larger monetary losses led to more negative affect (including Guilt, Frustration etc.)
- Increased opportunity cost of time spent, and larger monetary losses led to more pre-occupation and therefore more distraction from social functioning.

5.3.2   Short odds (lower volatility) betting increases win rate permitting money to go further

A common pattern of gambling behaviour within the remote setting that could lead to harm was the preference for gambling on sporting event outcomes, or elements of sporting events, that have a probability of success of approximately a 50-50 chance (often in the form of an *Over/Under* bet). An example of an *Over/Under* bet could be selecting whether there will be more or less than 2.5 goals in total within a specific soccer game, or selecting which

player would win the forthcoming tennis game within a specific set. It was observed that a substantial proportion of the sports bets placed by problem gamblers within this study were Over/Under bets, in contrast to placing bets on the match result of the sporting event at higher probability and potential return. It was common for problem gamblers to place a series of these types of sports bets simultaneously, rather than placing one bet at a time. In addition, the participants were observed regularly placing sports bets that were not specifically Over/Under bets, but bets that had a similar probability of success i.e. probabilities of close to 1.0 (or approximately a 50-50 chance of winning). Table 10 provides an example of a participant placing a large sequence of bets on Over/Under events, and other low volatility sports bets that have a relatively high probability of winning.

TABLE 10. DEMONSTRATION OF LOW VOLATILITY SPORTS BETTING AND HIGH HIT RATE
(PARTICIPANT 29, M, AGE 40, PGSI = 21)

Date & Time	Stake (£)	Odds	Won(£)	Bet Category/Type	
11Oct 2015 05:25:43	100	1.9	190	Over/Under	Total Points by Home Team
11Oct2015 05:26:23	100	2.16	216	Over/Under	Total Points
11Oct2015 07:23:28	94	1.85	0	1 x 2	Match Odds
11Oct2015 12:53:27	56	4.2	0	Outright	Winner
11Oct2015 13:00:37	100	2	0	Outright	GP winner
11Oct2015 14:25:40	100	1.91	191	Outright	To Win
11Oct2015 15:00:47	41	3.5	0	Outright	To Win
11Oct2015 15:01:16	50	2.63	0	Head	Race Winning Distance
11Oct2015 15:12:58	50	2.63	131.5	Head	Race Winning Distance
11Oct2015 15:14:46	100	1.93	193	Over/Under	Total Points

Because of the approximate 'even money' nature of these type of betting selections, the problem gamblers had a relatively high rate of success, as one would expect when placing multiple 50-50 bets within a session. At face value, experiencing a high proportion of success appears to be a positive outcome for the participants. However, a gambling activity that has low volatility[8] has potential risk for the development of problematic patterns of gambling. Fundamentally, placing many bets with an approximately 50-50 chance of winning, should culminate in the gambler being positively reinforced approximately 50% of the time. The rate of success, often referred to in gambling as the 'hit rate', will positively reinforce gambling behaviour via monetary rewards i.e. winnings. Ultimately, the consistent provision of positive reinforcement in this gambling format via frequent, but relatively low level, monetary wins and arousal will encourage continued participation[9].

Not only are the players more motivated to continue gambling in response to their relatively high rate of winning, but the money returned to the players based on their winning selections provides further funds to continue gambling within that session. Therefore, the vast increase in sports betting opportunities enables problem gamblers to bet in a more continuous fashion because they are able to select low volatility bets in quick succession that have a high likelihood of returning winnings rapidly, which can be quickly re-staked on the vast offering of available sports bets. This mechanism may assist in explaining the observed long duration of sports betting sessions within the study. Effectively, changes in the sports betting offerings in remote settings can facilitate a high turnover of betting within

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[8] *Low Volatility in this regard refers to a relatively high frequency of, albeit small value, wins in relation to the amount of participation in the gambling activity*
[9] *For a full review of the impact of volatility and high reinforcement rate on persistent and problem gambling behaviour see Parke, Parke & Blaszczynski (2016, pages 50-51).*

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a session, and elongate session length, for some problem gamblers. Independent of financial outcomes, there are associated costs and harms with gambling sessions with very long durations, including the opportunity cost of time usurped, experiences of regret and shame in relation to time spent, and also physiological effects of gambling intensively over several hours.

To put this in contrast, the gambler who places bets at very low rates of probability, for example 12/1 or as often is the case in accumulator betting, 50/1 or more, is only likely to be reinforced occasionally as most of their bets are unlikely to win. This means that it will often be the case that the high volatility gambler will end a gambling session without obtaining winnings that may be re-staked to prolong the gambling session. Put simply, placing large volumes of 50-50 bets that stimulate a high rate of winning could create harm for the player because it enables them to extend their gambling session, and therefore increase the potential opportunity cost of time spent gambling.

> **Potential Harm Associated with Proposition 5.3.2:**
> - Higher 'hit rates' of winning in high volume, low volatility sports betting can motivate players to continue gambling sessions longer by providing a more rewarding gambling experience
> - An increase in the duration of a gambling session because a high rate of reinforcement per session can, in turn, lead to an increased opportunity cost of time spent gambling

5.3.3 'Cash-out' facility extends sports betting session length for problem gamblers

Furthermore, the Cash Out function can be applied to extend the duration of one's sports betting session. By being provided an opportunity to withdraw a proportion of the money placed on a sports bet, players have the capacity to identify their bets that are likely to lose, and effectively cancel their bet and retain some of the money originally staked. As previously discussed in Section 4.1, this opportunity to cut one's losses when a bet placed appears during the event to be highly likely to lose, can reduce the amount of monetary harm the player experiences because of sports betting. However, in contrast, there is scope for the cash out facility to increase the duration of a sports betting session. If a player has risked all their available funds on a sporting event, and is not permitted to cash out when the bet appears likely to lose, they will be restricted from continuing to gamble and the session will be shorter. Fundamentally, sports betting sessions can be substantially extended through strategic use of the cash out facility, by enabling the gambler with limited funds to retain cash to re-stake on different sporting events (See Table 11 as an example).

TABLE 11. DEMONSTRATION OF LIVE BETTING AND CASH OUT FACILITY (PARTICIPANT 22, M, AGE 27, PGSI = 8)

Time	Action	Amount (£)	Balance (£)
07:38:35	Live Bet	200.00	0.59
07:52:07	Live Bet Cash-Out	93.68	94.27
07:54:52	Live Bet	94.27	0.00
08:40:26	Live Bet Cash-Out	46.73	46.73
08:40:56	Live Bet	46.73	0.00
08:49:08	Live Bet Cash-Out	35.78	35.78
08:49:21	Live Bet	35.78	0.00
08:49:33	Live Bet	35.78	0.00
09:57:12	Monetary Deposit	50.00	50.00
10:00:15	Live Bet	50.00	0.00
10:31:52	Live Bet Cash-Out	7.09	7.09
10:39:38	Live Bet Cash-Out	40.49	47.58
10:43:32	Live Bet	47.00	0.58
11:44:25	Payment of Winnings	56.40	56.98
12:00:02	Live Bet	56.98	0.00
12:12:04	Payout	56.98	56.98
12:19:49	Live Bet	56.98	0.00
12:20:06	Live Bet	56.98	0.00
13:11:18	Payment of Winnings	82.62	82.62
13:27:32	Live Bet	82.62	0.00
14:33:19	Payment of Winnings	112.36	112.36
14:39:26	Live Bet	112.36	0.00
14:39:45	Live Bet	112.36	0.00
14:53:16	Live Bet Cash-Out	55.02	55.02
14:56:38	Live Bet	55.00	0.02
16:17:07	Live Bet Cash-Out	37.67	37.69
16:25:50	Live Bet	37.69	0.00
17:46:07	Payment of Winnings	60.30	60.30
17:50:03	Live Bet	60.00	0.30
17:50:17	Live Bet	60.00	0.30
18:00:53	Live Bet	60.00	0.30
20:07:07	Live Bet Cash-Out	19.44	19.74
20:20:25	Live Bet	19.74	0.00
20:23:17	Monetary Deposit	50.00	50.00
20:32:23	Live Bet Cash-Out	1.95	51.95
20:33:05	Live Bet	51.00	0.95
20:42:12	Live Bet Cash-Out	30.42	31.37
20:43:59	Live Bet	31.36	0.01
21:08:06	Live Bet Cash-Out	23.50	23.51
21:08:44	Live Bet	23.51	0.00
21:47:34	Payout	38.32	38.32
22:32:56	Live Bet	38.32	0.00

Potential Harm Associated with Proposition 5.3.3:
- The use of cash out to retain some proportion of money risked on bets that are likely to lose, can lead to the increase of the duration of a gambling session, if the funds cashed out are immediately re-staked elsewhere.
- However, if the money cashed out is not re-staked within that session the level of monetary harm will have been reduced.

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5.4   THEORETICAL CATEGORY 2: HIGH BET FREQUENCY WITHIN-SESSION

The behavioural propositions within this category attempt to demonstrate and explain the process of high volume betting, in terms of frequency, within a remote gambling session. These behavioural processes are different to Theoretical Category 1 (Long Duration) because intensive patterns of high frequency betting are not specifically restricted to sessions with a long duration.

5.4.1   *Vast live betting options within a single event facilitates rapid bet frequency and no reflection time for problem gamblers*

As one would anticipate, high frequency betting was commonly observed within casino slot machines and casino table games in the remote gambling environment. Even in terrestrial gambling environments it is often the case that such gambling events, such as the spin of a roulette wheel or a spin of a slot machine, have very short durations and one is permitted to re-stake money immediately and therefore engage in continuous gambling. However, it is worth noting that casino table games in remote gambling environments are usually faster than their land-based counterparts meaning there is scope online to gamble at a much faster rate. Rapid and continuous forms of gambling are widely acknowledged to be related more towards problematic patterns of play than gambling activities that have a lower event frequency (Parke et al, 2016).

TABLE 12. HIGH FREQUENCY BETTING ON SMALL ELEMENTS OF A SPORTING EVENT (PARTICIPANT 44, M, AGE 36, PGSI = 15)

Date & Time	Stake (£)	Odds	Bet Type
October 9th 00:15:48	5.3	1.1	Tennis 'Game'
October 9th 00:17:37	15	1.48	Tennis 'Set'
October 9th 00:23:33	15	1.25	Tennis 'Game'
October 9th 00:25:23	22	1.98	Tennis 'Game'
October 9th 00:28:50	18	8.5	Tennis 'Set'
October 9th 00:29:40	25	1.9	Tennis 'Game'
October 9th 00:35:35	35	2.05	Tennis 'Game'
October 9th 00:41:29	20	1.53	Tennis 'Point'
October 9th 00:44:11	30	1.11	Tennis 'Game'
October 9th 01:08:38	45	1.75	Tennis 'Set'
October 9th 01:12:26	19.34	1.87	Tennis 'Set'
October 9th 01:13:54	50	2.3	Tennis 'Set'
October 9th 01:29:46	120	1.23	Tennis 'Game'
October 9th 01:40:36	20	1.09	Tennis 'Game'
October 9th 01:43:55	37.52	2.95	Tennis 'Set'

Traditionally, sports betting has not been a continuous form of gambling, but structural developments in remote sports betting settings mean that this is changing. As discussed, the introduction of live betting has significantly increased the opportunities available for remote gambling sports bettor to gamble in a continuous format. Furthermore, within remote gambling settings there is a trend for the provision of extensive itemisation and modulation of sporting events into elemental sections. Put simply, whereas traditional sports betting markets were confined to outcomes of the whole match or competition, within remote gambling sites the player is regularly permitted to bet on small 'mini-events' throughout the game, such as who will *win the first corner* of a soccer match.

In effect, the deconstruction of larger sporting events into smaller parts means that, not only will there be substantially more opportunities to bet, but the result of the bet will be

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delivered much faster. For example, rather than needing to wait for the result of a tennis match, which normally lasts several hours, a gambler betting on the result of the individual games within the tennis match can place a higher number of bets overall. In addition, the gambler who is sequentially betting on individual games within a tennis match, rather than the match itself, will receive a higher rate of reinforcement based on the sheer volume of betting. This is likely to have implications for motivation to continue gambling in response to winning, or to persist in gambling and chase losses in response to losing. For example, as demonstrated in Table 12, in contrast to placing one bet on the result of a tennis match the participant has made 15 separate bets on the tennis match, meaning that the event frequency and rate of reinforcement increased.

From the data observed from the accounts of online problem gamblers' sports betting behaviour, it was common for bets to be made a) during the sporting event, b) on elemental events in the game rather than the match result, c) simultaneously to other bets on events that are occurring at the same time, and finally d) to cash out bets during the event. These options available within the customer environment in remote gambling facilitate the placing of several bets in quick succession. Ultimately, it was commonly observed within the data that the problem gamblers would place multiple bets in a rapid sequence, regardless of whether the length of the gambling session was long or brief.

> **Potential Harm Associated with Proposition 5.4.1:**
> - The high frequency of sports betting, even within short gambling sessions, can lead to players incurring significant losses, and therefore increased monetary harm, in a relatively modest amount of time.
> - The rapid, sequential placement of a high number of sports bets in a short space of time suggests that the player is not fully evaluating their gambling decisions, which is indicative of emotionally driven, reactive patterns of betting.

5.4.2 IT facilitates rapid bet placement creating more intense sessions for problem gamblers

The participants within this study were consistently observed placing a high volume of bets when both sports betting, and when gambling on online casino games. As previously identified, the bets placed were often on live bets or small elements of a sporting event, and therefore the duration of betting events was relatively brief and gamblers were informed of winning or losing within a short space of time from placing their bet. Table 13 provides an example of a high intensity sports betting session, showing that the participant in this example placed a total of 41 individual sports bets within just 69 minutes. As demonstrated in Table 13, there is a substantial level of action within this participant's gambling account within a relatively short period of time. It is reasonable to propose that this high level of transactions, including payout of winnings, would leave limited scope for calm evaluation of one's gambling behaviour.

The negative impact of intensive, high frequency sports betting on future gambling behaviour is likely to be determined to a large extent by the overall outcome of each gambling session. Essentially, the process of making multiple sports bets within a short space of time, with the results being determined quickly, meant that participants regularly made substantial losses in a short time period. It was evident throughout the analysis that the participants who lost large sums in a brief period were more likely to make further deposits and continue

gambling. The experience of losing a large amount in a short space of time is likely to create a negative emotional response. Participant 90 illustrates the experience of losing a significant amount in a short space of time in the following extract:

"It all depends on if I win or not early on, if I slowly lose my initial deposit over a period of 20 minutes or more I'll be content and not end up depositing further. However, if I lose quickly that is when the sessions can last quite a while as I try to chase the losses… Yes, quite a few times [lost control]. Usually when I have lost the amount I intended to bet very quickly and as such have put more in in order to try and chase the losses…" Participant 90, M, Age 28, PGSI=12

TABLE 13. DEMONSTRATION OF HIGH INTENSITY SPORTS BETTING SESSION (PARTICIPANT 67, M, AGE 27, PGSI = 23)

Date & Time	Stake (£)	Won (£)	Odds
September 4th 04:01:03	10	0	11.5
September 4th 04:01:42	15	0	3.6
September 4th 04:03:54	60	0	2.55
September 4th 04:08:49	20	0	3.65
September 4th 04:10:11	40	0	1.9
September 4th 04:11:36	15	63	4.2
September 4th 04:13:12	45	84.15	1.87
September 4th 04:13:41	40	0	1.7
September 4th 04:16:18	45	0	5.1
September 4th 04:17:13	40	70.4	1.76
September 4th 04:21:31	10	90	9
September 4th 04:29:25	25	75	3
September 4th 04:30:58	45	0	1.79
September 4th 04:34:45	30	112.5	3.75
September 4th 04:35:36	15	0	4.6
September 4th 04:37:18	30	0	4.4
September 4th 04:39:27	35	0	2.75
September 4th 04:42:38	15	0	5
September 4th 04:45:45	60	145.8	2.43
September 4th 04:47:06	40	0	3.4
September 4th 04:48:02	35	0	2.95
September 4th 04:54:38	15	0	7.5
September 4th 05:00:35	50	0	3.25
September 4th 05:08:09	60	117.6	1.96
September 4th 05:12:09	45	99	2.2
September 4th 05:13:06	50	95	1.9
September 4th 05:16:37	50	255	5.1
September 4th 05:25:52	43	81.7	1.9
September 4th 05:27:59	35	101.5	2.9
September 4th 05:31:51	50	92.5	1.85
September 4th 05:32:31	45	86.4	1.92
September 4th 05:34:58	55	0	2.85
September 4th 05:36:57	50	120	2.4
September 4th 05:37:31	15	0	5.25
September 4th 05:39:09	46	20.68	3.55
September 4th 05:44:29	35	0	3.35
September 4th 05:46:12	40	92	2.3
September 4th 05:47:17	35	0	3.5
September 4th 05:48:24	35	12.38	4.25
September 4th 05:56:09	15	0	3
September 4th 05:09:43	15	0	3.33

As previously discussed in Section 5.2, in the current remote gambling environment it is possible to make further monetary deposits to replenish an empty account balance and continue gambling within a matter of seconds of the outcome of the previous bet. Fundamentally, the opportunity to instantly make further monetary deposits in response to losing a large sum in a relatively short space of time is likely to have a negative impact on decision-making, and indeed facilitate irrational, emotionally driven gambling as the players chase their losses. As demonstrated in the example provided in Table 14, the participant made subsequent deposits within approximately 60 seconds of losing the previous deposit. This suggests that the participant, in an emotive and reactive state, was chasing their losses without adequately evaluating the previous betting behaviour and whether to continue gambling. In the following extract, Participant 90 describes the limited evaluation and attention given to gambling decisions in response to losing a large sum within a brief period:

"[Remote Gambling] allows players to make a lot of decisions in a very short space of time before they have had a chance to consider just how potentially damaging these decisions are, when things are going badly there is a strong temptation to ignore the negative sides in the hope that if you quickly bet big and add more in you'll end up make in profit and not have to deal with those negative feelings or ideas… This only ever lasts during the moment, afterwards you do realise how irrational you were, even in the case of you actually winning back the losses there can be a sense of guilt or self-awareness at the ridiculousness of the situation you have let yourself get into." Participant 90, M, Age 28, PGSI=12

TABLE 14. EXAMPLE OF INSTANT DEPOSITS AFTER LOSING INITIAL DEPOSIT IN SHORT TIME PERIOD (PARTICIPANT 23, M, AGE 32, PGSI =10)

Time	Action	Amount (£)	Balance (£)	Type
15:33:03	Bet	40	39	Casino Bet
15:33:49	Bet	24	15	Casino Bet
15:34:47	Bet	15	0	Casino Bet
15:35:49	Deposit	100	100	Payment
15:36:33	Bet	75	25	Casino Bet
15:37:23	Bet	25	0	Casino Bet
18:11:56	Bonus Awarded	50	50	Bonus
18:13:26	Bet	31	19	Casino Bet
18:14:10	Bet	16	3	Casino Bet
18:14:56	Bet	3	0	Casino Bet
18:15:54	Deposit	100	100	Payment
18:16:35	Bet	16	84	Casino Bet
18:17:28	Bet	24	60	Casino Bet
18:18:26	Bet	34	26	Casino Bet
18:18:54	Payout	72	98	Payout
18:19:24	Bet	42	56	Casino Bet
18:20:15	Bet	39	17	Casino Bet
18:21:09	Bet	17	0	Casino Bet
18:22:59	Deposit	100	100	Payment
18:23:33	Bet	15	85	Casino Bet
18:23:53	Payout	18	103	Payout
18:24:21	Bet	33	70	Casino Bet
18:25:07	Bet	19	51	Casino Bet
18:26:04	Bet	27	24	Casino Bet
18:26:56	Bet	24	0	Casino Bet
18:27:45	Deposit	100	100	Payment
18:28:37	Bet	17	83	Casino Bet

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This concept of emotionally driven, reactive decisions to make further deposits instantly after losing one's original deposit is extended further with consideration of the use of the *reverse withdrawal* facility available within remote gambling sites. In the data, it was commonly observed that participants would cancel previously made withdrawal transactions rather quickly after making the initial decision to withdraw funds. The participants within the study would frequently make withdrawal transactions when their gambling account balance was larger than normal yet still retain some funds with which to continue gambling. When the modest funds retained in the account was gambled and lost, it was common for the player to immediately renege on their original decision to not gamble the money that they had previously withdrawn (See Table 15 for an illustration).

TABLE 15. CANCELLATION OF WITHDRAWAL REQUEST FOLLOWING LOSING (PARTICIPANT 5, F, AGE 45, PGSI = 17)

Date	Time	Action	Amount (£)	Balance (£)
13th November	00:21	Reverse Withdrawal	300	300
	00:22	Withdrawal	-260	40
	00:24	Bet	-8	32
	00:33	Bet	-12	20
	00:34	Bet	-20	0
	00:35	Reverse Withdrawal	260	260
	00:35	Withdrawal	-230	30
	00:37	Live Bet	-20	10
	00:39	Live Bet	-10	0
	00:53	Reverse Withdrawal	230	230
	00:54	Withdrawal	-200	30
	00:55	Live Bet	-15	15
	00:57	Live Bet	-15	0
	01:00	Live Bet Cash Out	8.57	8.57
	01:02	Live Bet	-8.57	0
	01:12	Reverse Withdrawal	200	200
	01:13	Withdrawal	-170	30

This process indicates a deterioration of self-control in response to incurred losses. Put simply, if the participant decided to not gamble but withdraw a specific amount, and then in response to losses quickly changes their mind, this suggests that the decision to persist gambling by cancelling the withdrawal was emotionally driven rather than an appropriately evaluated spending decision.

Participant 90 highlighted in the following extract that the reverse withdrawal option provides significant temptation to persist in gambling. It is also suggested that when one's money is retained within the remote gambling site (in contrast to being in one's bank account) the money is devalued and therefore easier to risk:

> *"I would remove the cancel withdrawal features as they are basically tempting people to lose their winnings and continue gambling… It feels like their money as opposed to yours so the temptation is there to try and have a free spin, once again I point to not thinking logically that this is actually your money you are losing."* Participant 90, M, Age 28, PGSI=12

> **Potential Harm Associated with Proposition 5.4.2:**
> - The capacity to make very rapid monetary decisions in remote gambling settings, including the placement of bets, further deposits and the cancellation of withdrawals, can facilitate substantial expenditure within a very short time frame.
> - The immense speed of gambling transactions in remote settings, and the potential to lose vast sums in a relatively short period of time can create gambling sessions with high intensity. Put simply, the speed of transactions reduces the scope for breaks-in-play when gambling online.
> - The lack of forced breaks-in-play (or *pauses in activity*) reduces the probability of the problem gambler reflecting on their behaviour and carefully evaluating potential gambling decisions. This is particularly problematic when the problem gambler can make rapid gambling decisions in a highly aroused and negative emotional state after incurring losses.

5.5   THEORETICAL CATEGORY 3: PREOCCUPATION WITH REMOTE GAMBLING

A third variation of problematic patterns of gambling in remote settings is proposed in the form of preoccupation with remote gambling. This category differs from the previously *discussed high frequency within session gambling*, because this behavioural process relates specifically to an intermittent pattern of remote gambling where the players would engage in multiple, but distinct, sessions across a day.

5.5.1   Pre-occupation via multiple, intermittent sessions throughout the day

Although the participants within the study were consistently observed initiating several distinct gambling sessions within a given day, it is important to note that a large proportion of these sessions were not brief. It was common for such sporadic and intermittent gambling sessions to have a duration of at least 20 minutes (see Table 15 for an illustration). Furthermore, this behavioural process of engaging in multiple sessions intermittently throughout the day was related to both sports betting and casino gambling in remote settings. At a simplistic level, frequently engaging in multiple gambling sessions within a day, rather than a single session, may have implications for volume of gambling and total net losses, and therefore may lead to increased monetary harm[10].

As demonstrated in Table 16, often there were substantial time-lags between gambling sessions within the day, and therefore it is probable that such intermittent gambling is impacting on other aspects of daily social functioning such as occupational or social roles. There is scope to propose that if gambling was confined to a specific period, rather than spread sporadically across the day, there may be a reduction in the level of non-monetary harm associated with remote gambling. In other words, it is important to consider that gambling has capacity to stimulate high levels of arousal and emotional states, and that these physiological and psychological consequences of gambling may not immediately dissipate upon logging out of the gambling website.

The continual initiation of new gambling sessions throughout the day may be reflective of the problem gambler being pre-occupied with recent negative gambling outcomes, and being motivated to chase losses. Remote gambling is readily accessible throughout the day via smartphones, tablets and laptops, and it may be the case that the problem gambler struggles to inhibit urges to chase losses with such ubiquitous availability. In the following extract, Participant 42 described this phenomenon:

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[10] It is important to note that gambling intermittently throughout a single day does not necessarily mean that the total time spent gambling that day will be lower than when gambling within a single continuous session.

"It's not easy and the temptation is there, for example yesterday i [sic] lost again and i[sic] want to go back and chase my losses and win more… I don't think i [sic] can now [avoid gambling] since it is easily accessible, unless i [sic] am move to locations where there is no internet." Participant 42, M, Age 34, PGSI 20

TABLE 16. DEMONSTRATION OF HIGHLY INTERMITTENT ONLINE GAMBLING WITHIN A 36 HOUR PERIOD (PARTICIPANT 23, M, AGE 32, PGSI =10)

Date	Start Time	End Time	Activity
1 October	00.36	00.43	Casino Games
	15.15	15.37	Casino Games
	18.11	18.55	Casino Games
	20.37	20.37	Sports
	21.13	21.13	Sports
	21.45	21.45	Sports
	23.10	23.24	Casino Games
02 October	00.11	00.55	Casino Games
	01.24	02.43	Casino Games
	03.23	03.54	Casino Games
	05.28	06.01	Casino Games
	07.11	07.14	Casino Games
	08.18	08.30	Casino Games

As outlined in the following extract, it appears challenging for the problem gamblers to resist urges to gamble and to chase losses within a social environment where gambling advertising is highly prominent, and one has virtually unlimited and unrestricted access to remote gambling:

"I blame all this adverting on TV that's the trigger for a lot of people. Put sky sports [sic] on and watch it for a few hours and you will see a betting operator advertising a new type of offer every 7 minutes. They are ruthless, advertising betting online or in shop has to be banned full stop." Participant 85, M, Age 51, PGSI=12

> **Potential Harm Associated with Proposition 5.5.1:**
> - Engaging in multiple gambling sessions with a significant duration intermittently within a given day is likely to lead to an increase in volume of betting, and therefore a probable increase in total monetary losses and harm experienced.
> - Furthermore, intermittently gambling across the day, rather than confining it to a single set period, is likely to increase level of pre-occupation with gambling and increase the probable negative impact on other aspects of social functioning.

5.5.2 Pre-occupation via live betting and cash-out monitoring

A further pattern to emerge from the data relates to the ubiquitous nature of remote gambling, and consequently, the challenge that this unlimited availability and opportunity to gamble poses for the problem gamblers within this study. As observed in *Theoretical Category 2: High Frequency of Gambling Sessions,* the participants commonly engaged in distinct gambling sessions intermittently throughout the day. In addition, within the interview data it was evident that the ease of accessibility was a crucial factor in propagating the craving to return and gamble further.

However, in terms of identifying new patterns of problematic gambling in remote settings, consideration must be given to the impact of the new features of live betting and cash out on the players' level of pre-occupation, and the ensuing opportunity cost of such attentional demand in terms of consequences for social functioning and performance. Live betting and cash out features, as indicated in the example illustrated in Table 17, are heavily utilised features by the participants within the study. The value of live betting and cash out features is the opportunity to make betting decisions in real time, with the aid of observing a proportion of a specific sporting event to help inform quality of betting decisions.

Indeed, as Participant 42 outlines in following extract, participants perceived that the capacity to make gambling decisions in real time reduced the risk associated with the bet:

> *"This increased the number of bets I am playing since in-play bets are more exciting for me, less time in a game and higher odds. This is an interesting feature and indeed I would be willing to make larger bets with cash out option since its [sic] less risk".*
> Participant 42, M, Age 34, PGSI 20

TABLE 17. DEMONSTRATION OF LIVE BETTING AND CASH OUT FEATURES AND PROBABLE INDICATIONS OF PRE-OCCUPATION AFTER BET PLACEMENT (PARTICIPANT 56, M, AGE 35, PGSI = 35)

Time	Action	Amount (£)	Balance (£)
00:04:46	Cash Out	367.89	4927.13
00:13:48	Live Bet	927	4000.13
01:32:39	Payout	1000	5000.13
08:57:49	Live Bet	400	4600.13
09:02:40	Live Bet	400	4200.13
09:43:45	Payout	700	4900.13
09:46:17	Cash Out	545.81	5445.94
09:50:16	Live Bet	995	4450.94
10:32:58	Payout	1741.25	6192.19
10:34:28	Live Bet	992	5200.19
11:00:05	Cash Out	422.39	5622.58
11:01:46	Live Bet	622	5000.58
11:44:37	Cash Out	517.38	5517.96
11:44:56	Live Bet	717	4800.96
12:33:40	Payout	1720.80	6521.76
12:41:44	Live Bet	150	6371.76
12:45:54	Withdrawal	6000	371.76
12:52:23	Payout	457.50	829.26
13:02:17	Live Bet	829	0.26
13:38:00	Payout	1243.50	1243.76
13:38:53	Live Bet	643	600.76
13:44:15	Cash Out	263.26	864.02
14:09:02	Live Bet	564	300.02

However, for the participants to make use of the live betting and cash out options available in remote gambling settings, they will be required, or at least strongly motivated, to spend time observing the sporting event. If one looks at the example of live betting and cashing out in Table 17, there is scope to propose that if the participants are carefully observing the sporting events as listed, this will have significant opportunity costs in terms of time spent gambling. For example, a customer may only be logging in and out of a remote gambling website for a total duration of a handful of minutes, but if they are using live betting and cash out features, this *handful of minutes spent gambling* is not an accurate reflection of the total time spent pre-occupied with gambling, potentially at the expense of more beneficial activities. Potentially, the live betting and, more specifically, the cash out facilities in modern

remote gambling may be indirectly increasing the associated harm of gambling in terms of motivating customers to carefully monitor the sporting event to minimise the likelihood of losing all of one's original stake.

> **Potential Harm Associated with Proposition 5.5.2:**
> - The capacity to cash out and cancel one's bet during a sporting event, or indeed place a bet after viewing a portion of a sporting event, are features that are likely to motivate remote gamblers to carefully monitor the sporting events that they have bet on or intend to bet on. This is likely to have implications on the amount of time spent pre-occupied with gambling; potentially at the expense of other important areas of social functioning in terms of occupational, educational or social roles.

5.6   THEORETICAL CATEGORY 4: UNSOCIABLE HOURS GAMBLING

A commonly observed behavioural pattern was that the participants within the study would regularly gamble between midnight and 6am. At face value, this is not necessarily problematic. It could be that the individual is unemployed or that they are shift workers who have leisure time during this period. However, it was clearly noticeable that the time of day in which the participants were gambling was highly variable; with participants logging on to gamble sporadically and spread out across the whole 24 hours of the day (see Tables 17 and 18 for examples). It was clear that a large proportion of the sample did not have consistent time periods for when they participated in remote gambling.

Online gambling in the early hours of the morning was often a continuation of gambling initiated earlier in the evening, which may suggest that gambling in the early hours of the morning is not always a pre-determined decision but rather an emotionally driven attempt to chase losses. In the following extract, Participant 19, describes the experience of engaging in unplanned persistent gambling until the morning, and implies that the unlimited availability of remote gambling facilitates such unplanned gambling behaviour:

> *"Online I play blackjack and slots mostly for small stakes (between £1 and £10/hand up to £1/spin) sometimes for several hours…. I have often started gambling at 10pm intending to play for an hour before bed and eventually stayed up all night until the sun comes up. This always tends to be when im [sic] chasing losses."* Participant 19, M, 36, PGSI=18

It is possible that unplanned, excessive and persistent gambling sessions will have a negative impact on other areas of social functioning, in terms of a detrimental effect on the player's physical and social well-being. Even if the participant is currently unemployed or in tertiary education and has no requirement to wake early the subsequent day, there remains scope to suggest that there is an opportunity cost of time required to compensate for gambling extensively through the early hours of the morning.

TABLE 18. DEMONSTRATION OF SPORADIC ONLINE GAMBLING DURING UNSOCIABLE HOURS (PARTICIPANT 23, M, AGE 32, PGSI =10)

Date	Time	Action	Amount (£)	Type
16/11/2015	09:17:33	Live Bet	10	Sports
	09:18:39	Live Bet	40	Sports
	10:28:03	Live Bet	26	Sports
	10:32:00	Live Bet	46	Sports
	10:36:06	Live Bet	100	Sports
	10:39:42	Live Bet	30	Sports
	19:58:10	Live Bet	16	Sports
	22:57:24	Bet	20	Sports
17/11/2015	02:02:52	Bet	11	Casino
	02:03:39	Bet	10	Casino
	02:04:00	Payout	18	Casino
	02:04:25	Bet	18	Casino
	02:05:20	Bet	16	Casino
	02:06:05	Bet	13	Casino
	02:06:48	Bet	14	Casino
	02:07:37	Bet	6.20	Casino
	02:14:07	Bet	8	Casino
	02:14:55	Bet	19	Casino
	02:15:16	Payout	36	Casino
	02:15:40	Bet	22	Casino
	02:16:01	Payout	18	Casino
	02:16:23	Bet	15	Casino
	02:17:12	Bet	18	Casino
	02:17:57	Bet	12	Casino
	03:11:46	Bet	9	Casino
	03:12:34	Bet	1	Casino
	23:24:35	Live Bet	20	Sports
18/11/2015	00:08:02	Live Bet	53	Sports
	02:02:59	Live Bet	29	Sports
	03:41:14	Live Bet	58	Sports
	05:20:20	Bet	18	Casino

> **Potential Harm Associated with Proposition 5.6:**
> - The capacity to regularly engage in gambling between midnight and 6am is likely to increase the probability of extending a gambling session that has a negative outcome, to persist in chasing one's losses. As volume of total betting increases, it is expected that overall monetary losses, and therefore harm, will also increase.
> - Gambling during unsociable hours increases the probability of gambling during a state of fatigue, and this is likely to impair and reduce the quality of behavioural judgements in terms of whether to cease or persist gambling. Impaired decision-making during the early hours leading to persistent gambling is likely to lead to increased monetary loss.
> - If the extension of the gambling session into the early hours of the morning is unplanned and simply a reaction to incurring losses, it is probable that there will be negative consequences for occupational, educational or social functioning for the subsequent day.

5.7   THEORETICAL CATEGORY 5: CHRONIC USE OF REMOTE GAMBLING AS MECHANISM FOR MOOD MODIFICATION

As demonstrated in Table 19 it was evident that participants would often engage in several gambling sessions throughout the day. When interpreting the interview data alongside the observed patterns of intermittent gambling, it is proposed that the problem gamblers within the study found the immediate availability of gambling provided salient temptation to return to gambling.

Furthermore, this pervasive temptation to gamble, and immediately produce stimulation and arousal, may provide powerful reinforcement for the behaviour and may subsequently increase motivation over time. In other words, the participants being able to modify their mood state very quickly and with minimal effort via remote gambling will by default increase the motivation to gamble. As demonstrated in the following extract from Participant 42, it is evident that remote gambling can be used as a mechanism to 'self-medicate' and remove negative mood states:

> *"I believe the main reason is a feeling of excitement and adrenaline in my blood. I also think this distracts me from my real issues (stress in personal life and work environment) in life as well… When i [sic] am stressed i [sic] start gambling quite a lot and simply get addicted more. The offline activities such as meeting with friends, doing sports are much better option, but does not give me the same rush and adrenaline. Most bookies have also android apps which makes it extremely easy to login in a bet, in the past i [sic] always had to use their websites."* Participant 42, M, Age 34, PGSI 20

The act of gambling can create substantial changes in emotional and physiological disposition, and with remote gambling availability and portable IT, this capacity to change one's mood state in a short space of time is widely available to all remote gamblers. Extending this proposition further, there is scope to suggest that for some individuals this maladaptive approach to dealing with daily stress and negative mood states, may have negative consequences for social functioning as it does not address the source of stress. Put simply, the intermittent use of remote gambling to elevate mood or replace boredom may explain the sporadic, but highly frequent pattern of gambling throughout the day. Participant 90, in the following extract, also articulates this process of frequently using remote gambling as a daily, short-term escape from negative mood states:

> *"Usually boredom but on occasion to take my mind off other things… It's the ease of online gambling, if you're feeling stressed or anxious about something, going out seems more of a struggle, being able to just sit at home on your own without having to converse with people and gamble therefore is attractive. It can certainly made things worse though, especially if you lose a significant amount of money but you're not making a rational decision at that point."* Participant 90, M, Age 28, PGSI=12

Ultimately, as indicated in the extract above, the use of remote gambling as a short-term coping mechanism may lead to excessive gambling which can exacerbate one's problems.

> **Potential Harm Associated with Proposition 5.7:**
> - The immediacy and unlimited accessibility of remote gambling means that it can be used by players as a maladaptive coping mechanism to modify mood. The use of remote gambling as a tool to replace negative states has potential to exacerbate current, or create further, sources of stress.

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TABLE 19. DEMONSTRATION OF INTERMITTENT GAMBLING SESSIONS THROUGHOUT A SINGLE DAY (PARTICIPANT 20, F, AGE 28, PGSI = 12)

	Time	Amount (£)	Action	Balance (£)
Start	10.53:47	£25	Deposit	£25.00
Funds exhausted	10.57:13	£0.40	Last Bet	£0.37
Start	11.52:37	£25	Deposit	£25.37
Funds exhausted	11.55:16	£1.25	Last Bet	£0.02
Start	11.56:01	£25	Deposit	£25.02
Funds exhausted	11.59:24	£0.40	Last Bet	£0.12
Start	14.50:15	£60	Deposit	£60.12
Funds exhausted	15.04:24	£0.60	Last Bet	£0.17
Start	15.05:59	£50	Deposit	£50.17
Funds exhausted	15.08:09	£2	Last Bet	£0.27
Start	15.08:40	£50	Deposit	£50.27
Funds exhausted	15.14:31	£1.60	Last Bet	£0.07
One bet	17.46:10	£0.07	Last Bet	£0
Start	21.18:59	£25	Deposit	£25
Withdraw	22.36:22	£700.15	Withdraw	£0

5.8   HARM FROM PROBLEMATIC PATTERNS OF REMOTE GAMBLING

Identifying gambling-related harm is not always a straight-forward process. Gambling relates to putting one's monetary resources at stake, and therefore one of the most immediate potentials for harm is the loss of money. However, there is also the negative emotional and physiological consequences that can emanate from monetary losses, which can lead to other indirect negative consequences, including impairment in social functioning. Moreover, the time spent gambling in remote gambling settings can be substantial, and there is an opportunity cost associated with the time usurped by remote gambling.

5.8.1   Monetary Loss

The participants observed within the study frequently lost vast sums of money in relatively short time periods, however the true impact of monetary loss emerged from the interview data. Participants repeatedly highlighted several factors that make controlling expenditure in remote gambling challenging, including, as previously discussed the speed of gambling transactions and the ubiquity of remote gambling opportunities. However, several other structural characteristics related to remote gambling were also highlighted as being critical factors that help explain overspending and accumulation of large monetary losses.

Several participants identified that the combination of the capacity to gambling at a very fast rate and being able to access credit from external sources (i.e. not gambling-related sources), meant that expenditure could become excessive through not consciously tracking and evaluating spending during a gambling session online. Essentially, several participants identified that they became so engrossed in the remote gambling activity that they were not making fully informed and carefully evaluated gambling decisions. For example, Participant 79 stated:

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> *"It all depends what money I have available. On one occasion, I took a loan out of £5000 and gambled the whole lot within 3 hours. I have taken out pay day loans and never end the day with money available."* Participant 79, M, Age 49, PGSI=23

The following extract, from Participant 19, also supports this concept of spending more than planned simply by becoming too engrossed in the activity, and not pausing from gambling to gain composure and make informed responsible gambling decisions.

> *"I had a good credit rating at that point and was able to borrow thousands with a few clicks of the mouse. I lost a £16,000 loan over a single weekend without ever leaving the house or seeing a penny of the money."* Participant 19, M, 36, PGSI=18

In addition, multiple participants also emphasised that while money was still being held with the gambling operator (i.e., no longer, or not yet, in their bank account) it was devalued. In fact, many participants articulated that they often were no longer perceiving the sums they were risking in online gambling settings as money. For example, Participant 90 stated the following:

> *"It's also definitely harder to control, it also means you have less of a relationship with the actual money that is being won or lost so you can very quickly squander a lot more money as you're not thinking about the numbers on screen as actual cash."* Participant 90, M, Age 28, PGSI=12

Fundamentally, it is clear from the interview data that the participants were losing significant monetary sums that were causing substantial negative consequences. The behavioural data demonstrated that the participants were repeatedly risking vast monetary sums during gambling sessions, and doing so with regularity. However, monetary expenditure data in isolation is not enough to demonstrate harm, because determining whether the amounts lost are excessive or problematic requires further context regarding the participants' financial status. The interview data identified that the monetary losses observed within the behavioural data were indeed causing hardship and social problems for the participants. Participants 85 and 43, in their respective extracts, articulated the scale of potential losses that were possible in remote gambling within a relatively short space of time.

> *"It's just too easy to bet online, a little press of a few buttons and you could end up with not just no money left but no home, no family, no car, no selfrespec t[sic], your life could no longer be the same again."* Participant 85, M, Age 51, PGSI=12

And,

> *"Yeah losing often makes me depressed when I think what I could of [sic] done with that money - long holiday abroad, deposit for a house, new car and such like. It's worse when I work out how long I'll have to work to replace that - like 6 months or 9 months in effect working for nothing."* Participant 43, M, Age 36, PGSI=8

5.8.2   Opportunity Cost of Time Loss

From the behavioural data it was evident that participants were spending substantial amounts of time gambling in remote settings, and the interview data supported the concept that the vast time expenditure was related to negative consequences for the participants.

Participant 7, in the extract below, proposed that the vast time expenditure is not pre-determined before the session but rather an *ad hoc* result of the physiological changes experienced in response to gambling behaviour that created a loss of perspective:

> *"Gambling does change your life to a degree in that a lot of spare time can be consumed by it, and I have found myself playing for hours sometimes. It's easy to lose sense of time and more importantly, perspective. After lengthy sessions I find myself viewing money as just credits and may find it hard to tear myself away when my dopamine levels are flying all over the place."* Participant 7, M, Age 37, PGSI, 8

Participant 7 describes the inability of being able to bring gambling sessions to a close in remote gambling sessions because of high levels of arousal and strong urges to persist in gambling. Participants within the study admitted that there were significant negative consequences from being so heavily engaged in gambling beyond monetary loss, including the amount of time spent gambling that could have been spent more effectively elsewhere.

> *"Aside from money, time has been an issue. When I have a bet on it's like nothing else matters. Spending time with friends, family doesn't matter, just the outcome to my bet. Id [sic] even in the past book holiday from work and not tell my family so I can sit in the bookies on pay day. It makes you a very stressed and an on edge person who for me, ignored basic pleasures in life. Ultimately when you lost [sic] and lost again this would but pressure on the family due to lack of finances."* Participant 2, M, Age 30, PGSI=25.

Participant 2 in the extract above illustrated how the excessive time spent gambling, in both remote and terrestrial settings, can change their personality and limit the extent to which they can experience pleasure and satisfaction in everyday existence. Participant 2 suggested that there is an attentional trade-off when gambling; and that social functioning such as interacting with friends and family are substantially devalued in contrast to gambling. Ultimately, in the interview data it was clear that the participants were fully cognisant of the negative impact that such pre-occupation and time expenditure on gambling was having in other domains of their lives.

5.8.3 Psychological Harm

As well as direct costs from remote gambling i.e. money and time, several other indirect costs from excessive remote gambling were outlined by the participants within the interview data. Psychological harm was reported as a result of excessive gambling, in the form of the negative and unpleasant mood states that the participants experienced. The act of gambling itself was reported to create an unpleasant experience in terms of the stress and tension that can arise during the event. However, most participants emphasised that the negative mood states emerged after the gambling session, when they had an opportunity to gain perspective and awareness of the outcomes of the gambling session.

For example, in the following extract Participant 90 discloses that a prolonged gambling session with a high monetary turnover can create an experience of guilt, even when they have recouped losses, when they reflect on their behaviour:

> *"This only ever lasts during the moment, afterwards you do realise how irrational you were, even in the case of you actually winning back the losses there can be a sense of guilt or self-awareness at the ridiculousness of the situation you have let yourself get into."*
> Participant 90, M, Age 28, PGSI=12

In addition to low arousal, negative valence emotional states such as guilt and dysphoria that can emerge from remote gambling sessions, the participants also stated that they experience high arousal, negative emotional states in the form of frustration and anger. It is clear from the interview data that substantial negative changes in emotional disposition can result from remote gambling participation, and that this can lead to further negative consequences for the player experiencing anger and frustration. For example, Participant 85 disclosed:

> *"I have lost control at home. I once opened a account with [Operator Name] and placed £100 on black on the roulette and lost, I did the same bet 7 times and lost all 7 spins, I went demented and throw a brand new smartphone at the wall and it was smashed to absolutely pieces."* Participant 85, M, Age 51, PGSI=12

5.8.4   Reduction in Social Functioning

As previously outlined, for problem gamblers, remote gambling can lead to incurring problematic levels of monetary and time loss, and lead to the creation of negative mood states. It is therefore unsurprising to observe that problem gamblers may also experience a deterioration in their everyday social functioning. Social functioning in this context refers to the individual's performance in the various roles that they value and perceive as integral to their well-being, such as engagement with family and occupational responsibilities. Participant 19, succinctly summarises the wide range of social functioning types that can be compromised when gambling excessively:

> *"I have missed appointments, forgotten birthdays, neglected family, missed meals, not slept etc through gambling online."* Participant 19, M, 36, PGSI=18

Clearly, even occasional reductions in work or educational performance, or indeed familial roles, has potential to significantly reduce a player's level of well-being. However, given the repetitive, consistent nature of excessive gambling observed from the behavioural data, it is likely that some problem gamblers are experiencing significant impairment in social functioning. Participant 79, indicated that as excessive gambling becomes more consistent, and the negative monetary and social consequences accumulate over time, the entire personality of the player can change over the long-term:

> *"I need controls but there are none that work. I felt terrible at the beginning but you become like a zombie after a while where BUT your personality changes… Gambling changes people."* Participant 79, M, Age 49, PGSI=23.

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6 MODEL 2 - WINNING AND BEHAVOURAL RISK

'*Winning and behavioural risk*' is the second grounded theory model emerging from this study following the analyses of the behavioural and interview data (see Figure 4). This second model is different from the '*evolving features model*' in that it considers a narrower set of concepts in more depth. In this second model, *winning* was generally observed as a catalyst for *behavioural risk* in gambling particularly in subsequent sessions (i.e., *prospective risk*). *Early session winning* also appeared to increase within-session risky behaviours (i.e., *proximal risk*) in the absence of any immediate financial risk. In contrast, *winning* later in a session producing *successful chasing* tended to decrease within-session risky behaviour (*self-protective behaviour or SPB*). However, where gambling persisted, *SPB* gave way to a *re-escalation* of risk in the same session typified by *reverse withdrawals* and *reloading* (i.e., making multiple deposits). These new theoretical propositions on how winning determines gambling-related risk provide insights into problem gambling, strategic direction for responsible gambling initiatives and open new lines of enquiry for empirical research. Each of these concepts and theoretical categories outlining how they link together are discussed in greater detail below.

6.1   CONCEPTUALISING 'WINNING'

'*Winning*' in this model is operationally defined as '*a substantive and immediate improvement in financial position*' for the problem gambler. Two broad win patterns were observed in the data that met these criteria: a) *win clusters* and b) *isolated big wins*. A third win pattern, *bankroll-maintenance* was also identified but was unlikely to produce a substantive or immediate shift in financial position (see below) and therefore was not categorised in our model as 'winning'.

Win clusters refer to several small or medium-sized wins that occur in close sequence and usually result from playing less volatile (shorter odds) games like roulette, blackjack or various sports betting options at relatively higher stakes. As demonstrated in Figure 5, a sequence of positive results can result in a significant positive change in financial position quite quickly particularly if stake size has been increased throughout the session.

Isolated big wins usually resulted from playing more volatile[11] slot games. These games are characterised by longer periods of losing with more irregular higher value wins. Figure 6 highlights how win events could be in the magnitude of 300 times the size of the original stake. As one participant recalled, very large wins relative to stake size are less common but more memorable:

> "*That was the first time I'd seen such a gulf between bet size and winnings, which I'd never imagined feasible. I'd won maybe £2-300 using small means but never anything like this. I also distinctly recall almost not making that initial deposit, so it may never have played out all. It was probably my last £12 and I anticipated a ten-minute session at best.*"
> Participant 7, M, Age 37, PGSI=8

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[11] Volatility within gambling refers to the dispersion of winning outcomes (i.e. monetary reinforcement) across a gambling activity. The volatility of a game will vary in terms of the frequency of monetary reinforcement that it provides across a session. Gambling activities with a lower volatility, providing more frequent wins, will provide wins that are smaller on average in relation to the stake, than a similar game with a higher volatility. Volatility, therefore, is inherently linked to reinforcement and the prize structure of a gambling activity in terms of the variety of winning amounts that are available within the game (Parke, Parke & Blaszczynsi, 2016).
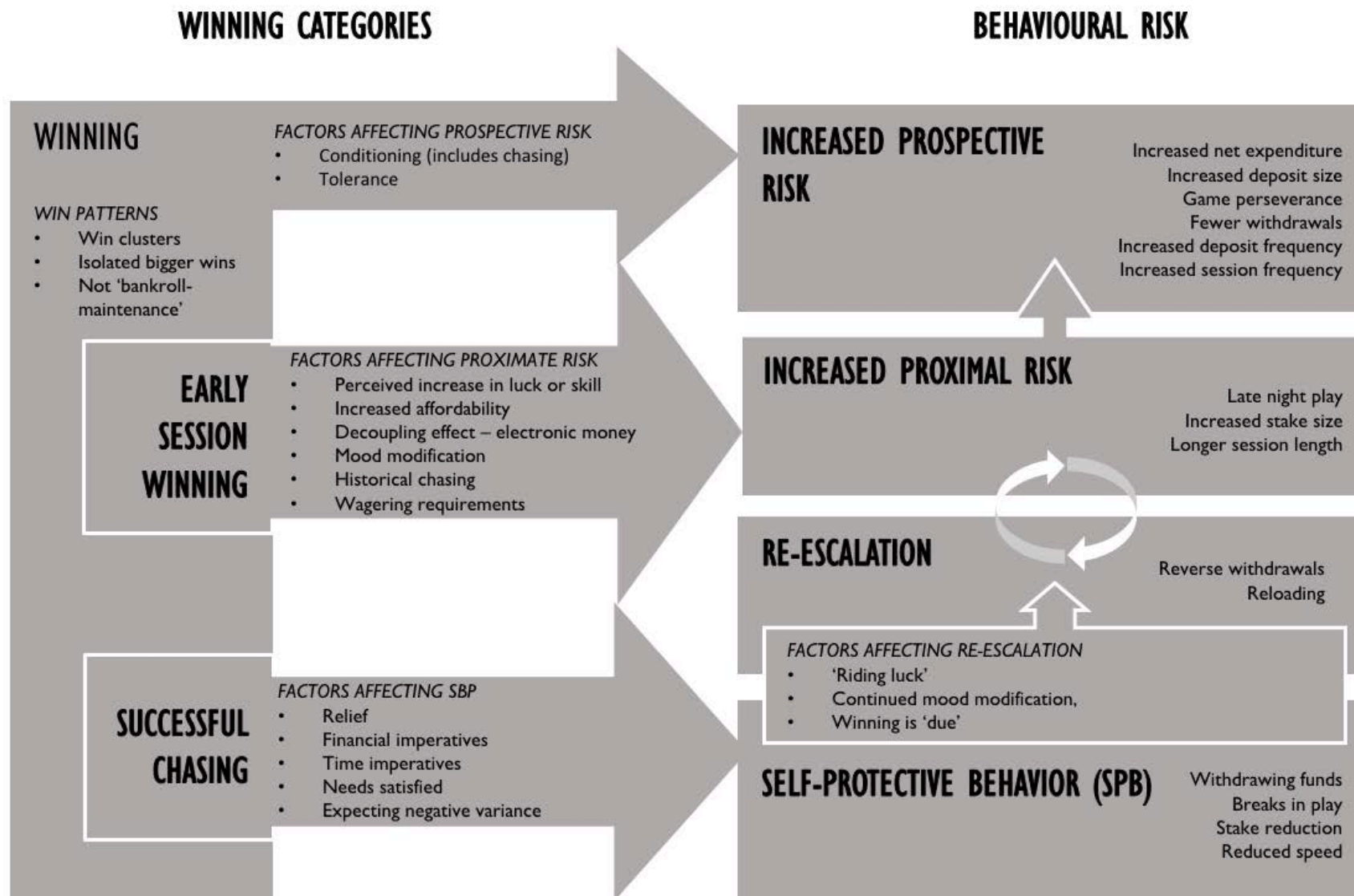
WINNING CATEGORIES

BEHAVIOURAL RISK

WINNING

FACTORS AFFECTING PROSPECTIVE RISK
- Conditioning (includes chasing)
- Tolerance

WIN PATTERNS
- Win clusters
- Isolated bigger wins
- Not 'bankroll-maintenance'

INCREASED PROSPECTIVE RISK

Increased net expenditure
Increased deposit size
Game perseverance
Fewer withdrawals
Increased deposit frequency
Increased session frequency

EARLY SESSION WINNING

FACTORS AFFECTING PROXIMATE RISK
- Perceived increase in luck or skill
- Increased affordability
- Decoupling effect – electronic money
- Mood modification
- Historical chasing
- Wagering requirements

INCREASED PROXIMAL RISK

Late night play
Increased stake size
Longer session length

RE-ESCALATION

Reverse withdrawals
Reloading

FACTORS AFFECTING RE-ESCALATION
- 'Riding luck'
- Continued mood modification,
- Winning is 'due'

SUCCESSFUL CHASING

FACTORS AFFECTING SBP
- Relief
- Financial imperatives
- Time imperatives
- Needs satisfied
- Expecting negative variance

SELF-PROTECTIVE BEHAVIOR (SPB)

Withdrawing funds
Breaks in play
Stake reduction
Reduced speed

FIGURE 4. OVERVIEW OF 'WINNING AND BEHAVIOURAL RISK' MODEL
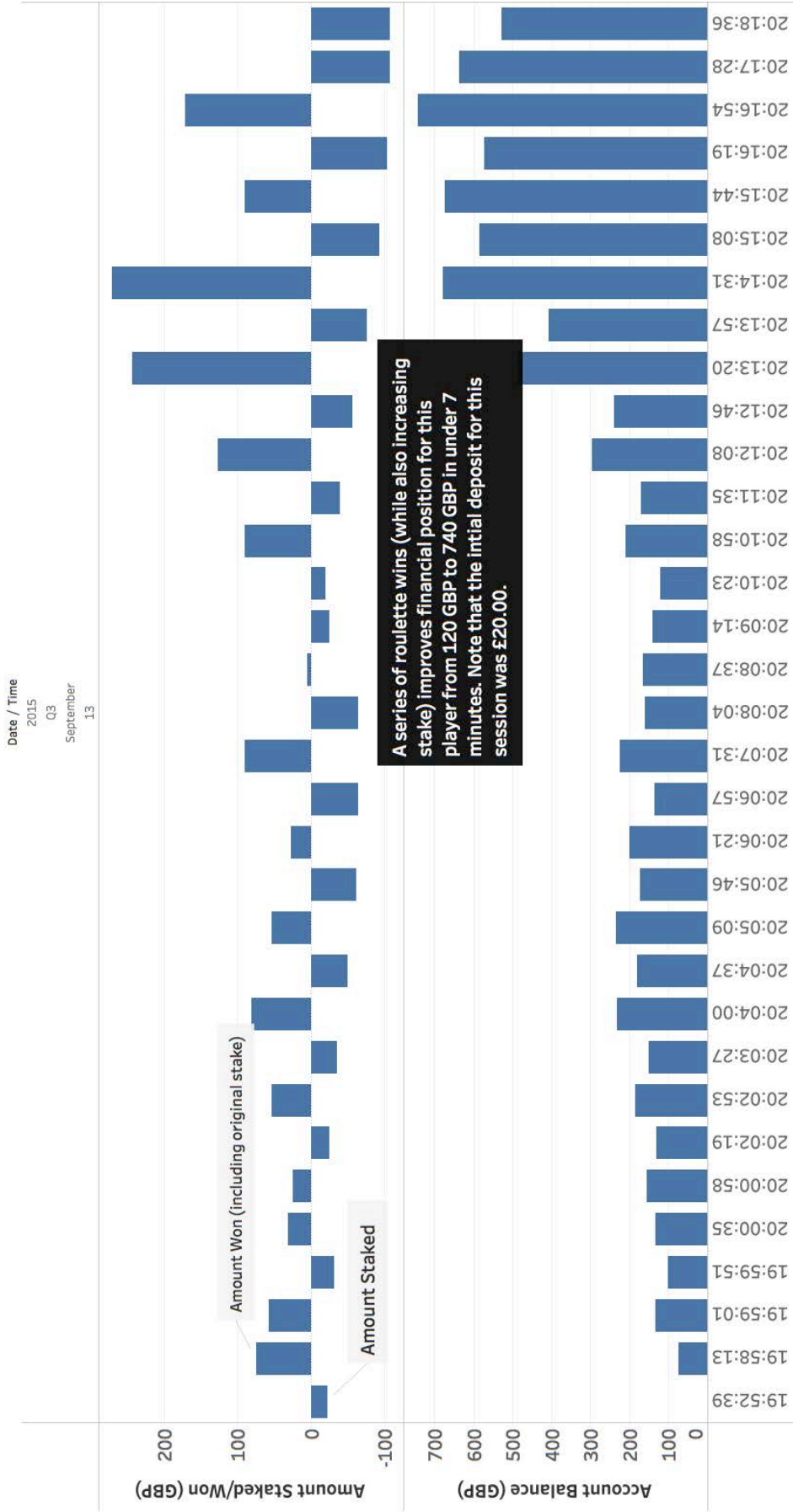
FIGURE 5. A WIN CLUSTER EMERGES DURING ROULETTE PLAY [PARTICIPANT 5, F, AGE 45, PGSI=17]

A series of roulette wins (while also increasing stake) improves financial position for this player from 120 GBP to 740 GBP in under 7 minutes. Note that the intial deposit for this session was £20.00.

Participant 7 also explains the appeal of games that can offer isolated big wins:

> *"The high-variance games have massive potential, which is where half the appeal lies. You've heard the stories, seen the screenshots and even witnessed it yourself and when you get several hundred from a small deposit it suddenly all seems worth it. With these games the wins generally come in large blocks but very rarely, whereas a low-variance game will spit out small wins often. But you'll never really win anything of note. I also find these games provide ample playtime too, which is also balanced out with the excitement of knowing a massive hit is just around the corner. But often they can also provide a springboard to take one's balance to greater heights so that a real session can be had. It's no fun always playing on sub-£10 balances, most people want the feeling of having had a real go at these games as opposed to what seems like charitable donations to these casinos!"*
> Participant 7, M, Age 37, PGSI=8

Bankroll-maintenance wins refer the category of wins of least value. Data revealed that, isolated small wins, or even clusters of very small wins, appeared less likely to influence subsequent behavioural risk. Therefore, this pattern of wins, particularly wins which did not exceed the value of the original stake, were not categorised as *winning* in the model. The qualitative difference was noted and described by one problem gambler as follows:

> *"As much as the small wins are for building the bankroll I don't feel a session is complete without at least one major hit, therefore I wouldn't consider these wins as profit but bankroll-enlargers."*
> Participant 2, M, Age 30, PGSI=25

While bankroll-maintenance wins may be valued for sustaining the money available for gambling and decelerating the rate of loss, they did not appear to significantly affect behavioural risk unlike the other two forms of winning.

6.2   WINNING AS DETERMINANTS OF BEHAVIOURAL RISK

The resultant financial position from *winning* has been categorised into two determinants of behavioural risk *early session winning* and *successful chasing*. This relatively simple dichotomy representing an otherwise continuous variable serves the model well as the player's relative financial position when winning has emerged as an important determinant of behavioural risk. Both concepts will be discussed and illustrated below and their observed impact on behavioural risk will be discussed in more detail in subsequent sections.

6.2.1   Early session winning

Based on our conceptualization of *winning* (i.e., producing substantive and immediate shifts in financial position), *early session winning* logically produces a within-session profit because it precedes any significant net expenditure. For example, in Figure 7, this problem gambler makes an initial deposit of £30.00 and starts to play a slot game at a stake size of £1.00 per spin. Two isolated big wins within the first 30 minutes of a three-hour session increases the bankroll (i.e., the available gambling balance) from below £50.00 to as high as £450.00.
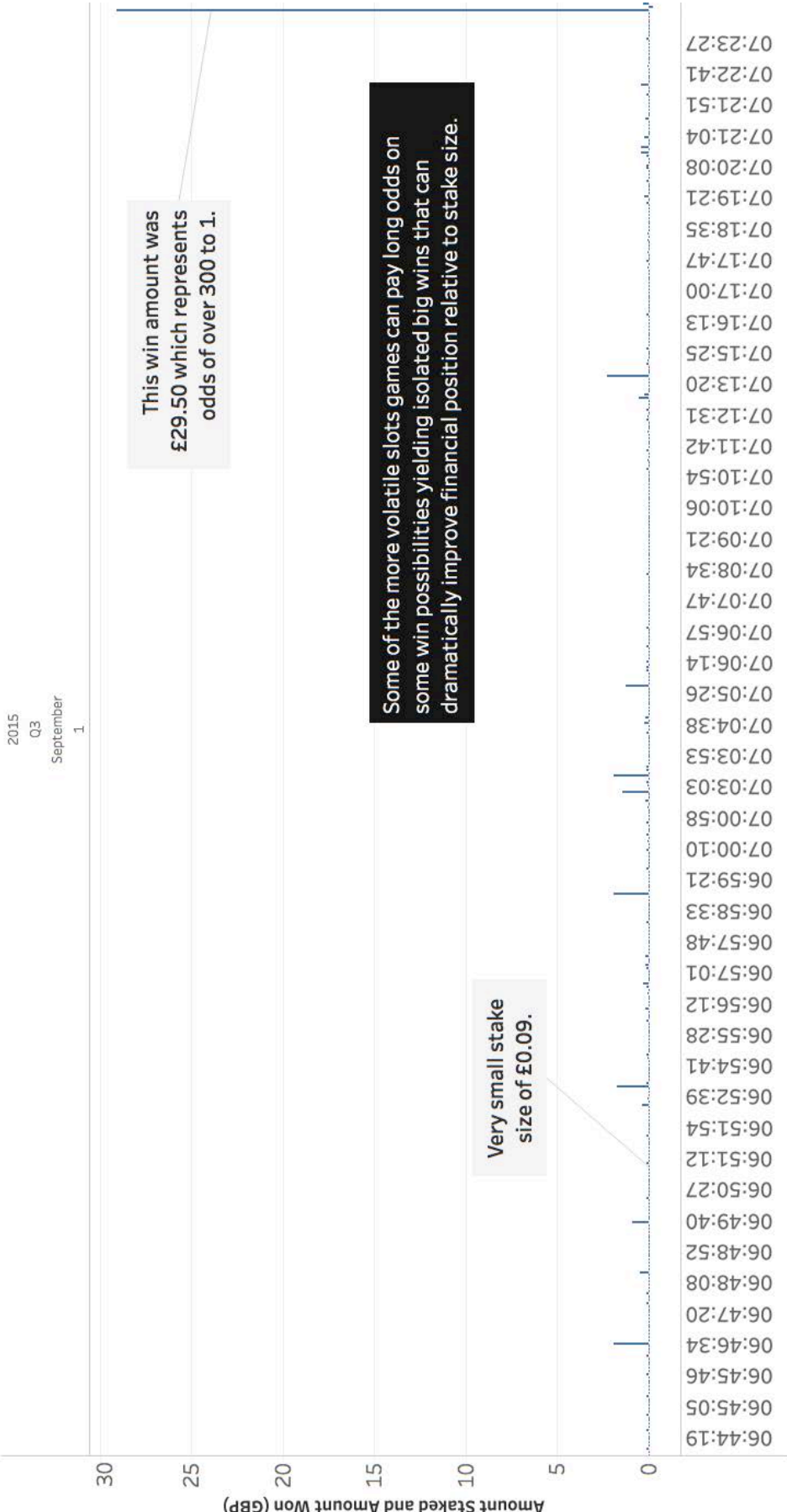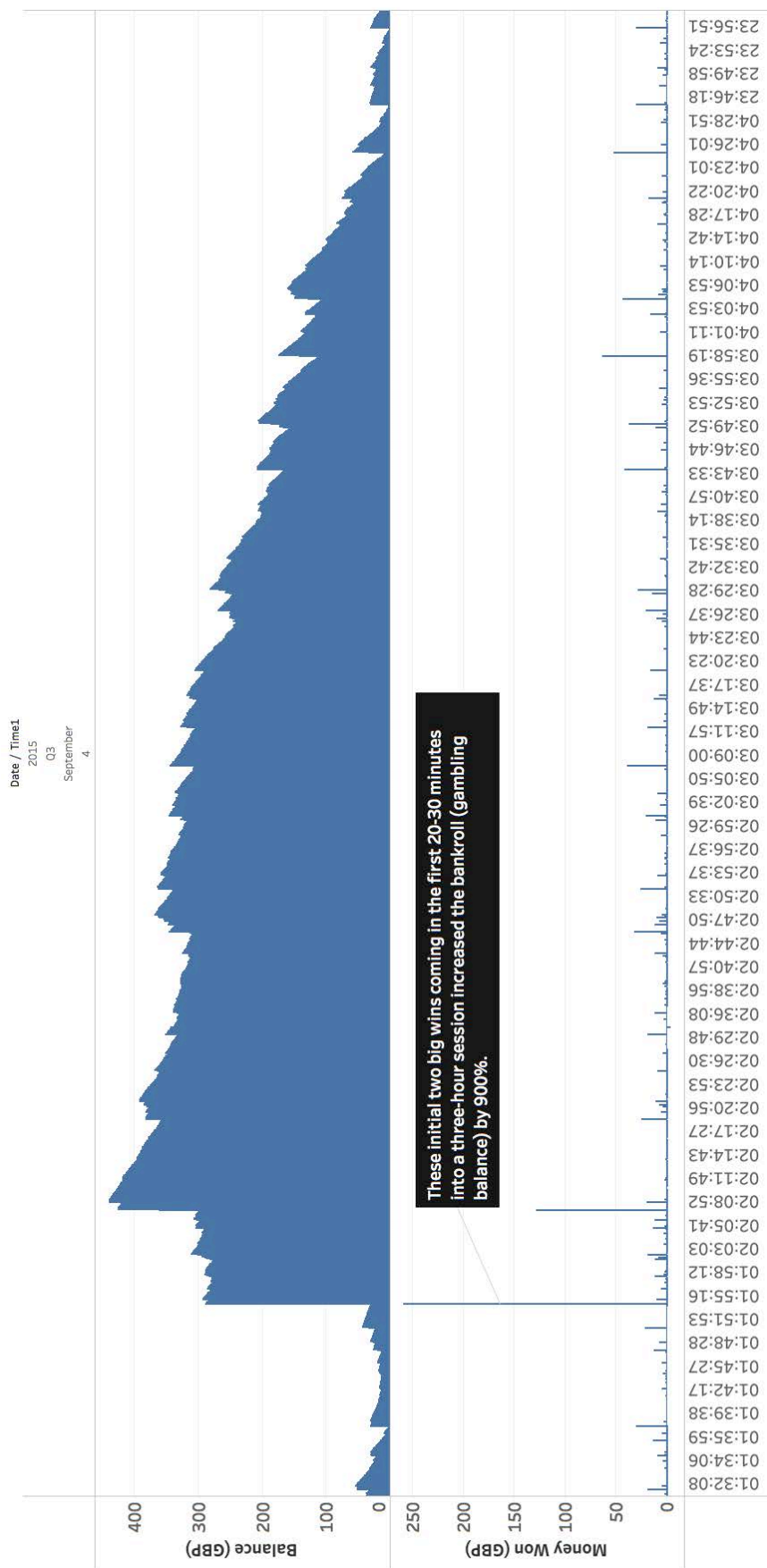
FIGURE 6. ISOLATED BIG WIN 300 TIMES LARGER THAN STAKE [PARTICIPANT 7, M, AGE 37, PGSI=8]

This win amount was £29.50 which represents odds of over 300 to 1.

Some of the more volatile slots games can pay long odds on some win possibilities yielding isolated big wins that can dramatically improve financial position relative to stake size.

Very small stake size of £0.09.

Amount Staked and Amount Won (GBP)

2015
Q3
September
1

FIGURE 7. 'EARLY SESSION WINNING' EXAMPLE [PARTICIPANT 66, M, AGE 46, PGSI=11]

These initial two big wins coming in the first 20-30 minutes into a three-hour session increased the bankroll (gambling balance) by 900%.

6.2.2 Successful chasing

Successful chasing in this model refers to 'winning' from a significant negative within-session financial position. This could include recovering part or all previous expenditure, or where 'winning' is sufficiently large, moving to a within-session profit. However, note that profits from chasing are deemed qualitatively different from early session winning because of the preceding sequence of losing outcomes. Successful chasing was often preceded by multiple within-session deposits (also referred to as 'reloads'). As one participant suggested, reloads can be propagated by heightened expectations of winning:

> *"Some sessions are hard to fathom, as nothing seems to go right. The games I had prior successes on have turned ice-cold, and it's due to this puzzlement that I may often chase those losses with further losing deposits."*
> Participant 2, M, Age 30, PGSI=25

The data presented in Figure 8 demonstrates how initial losses while playing blackjack prompted further deposits, each larger than the first, until (in this case) losses were recovered and initial deposits withdrawn.

A series of theoretical categories were developed linking early session winning and successful chasing to variations in behavioural risk. Specifically, these include the following four categories:

- Theoretical Category 1: *Early session winning* leading to *proximal risk*;
- Theoretical Category 2: *Successful chasing* leading to *self-protective behaviour* (SPB);
  Theoretical Category 3: Risk may *re-escalate* following *SPB* during extended play and;
- Theoretical Category 4: Both variations of *winning* lead to *prospective risk*.

These theoretical categories are discussed in detail below.

Note that these events lead to both *self-protective behaviour (SPB)* and *re-escalation*. These are discussed in the following sections. The first *SPB* was a *withdrawal*.

A total of 700 GBP was withdrawn at 13.03 which recovered the value of the original deposits for that session. That left 112.50 GBP remaining in the account.

Three winning 200 GBP bets produced 'successful chasing'.

A series of losing outcomes and increasing stakes leads to hundreds of pounds in losses in around 8 minutes.

Session begins with a 50 GBP deposit.

50 GBP reload

50 GBP reload

50 GBP reload

100 GBP reload

200 GBP reload

200 GBP reload

Date / Time1
2015
Q3
September
30

Product1 — Transaction1

Account Transactions
Deposits or Wins (GBP)
Withdrawals or Stakes (GBP)

Blackjack via Mobile
Deposits or Wins (GBP)
Withdrawals or Stakes (GBP)

Amount

FIGURE 8. 'SUCCESSFUL CHASING' EXAMPLE [PARTICIPANT 49, M, AGE 22, PGSI=14]

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6.3   THEORETICAL CATEGORY 1: EARLY SESSION WINNING LEADS TO PROXIMAL RISK
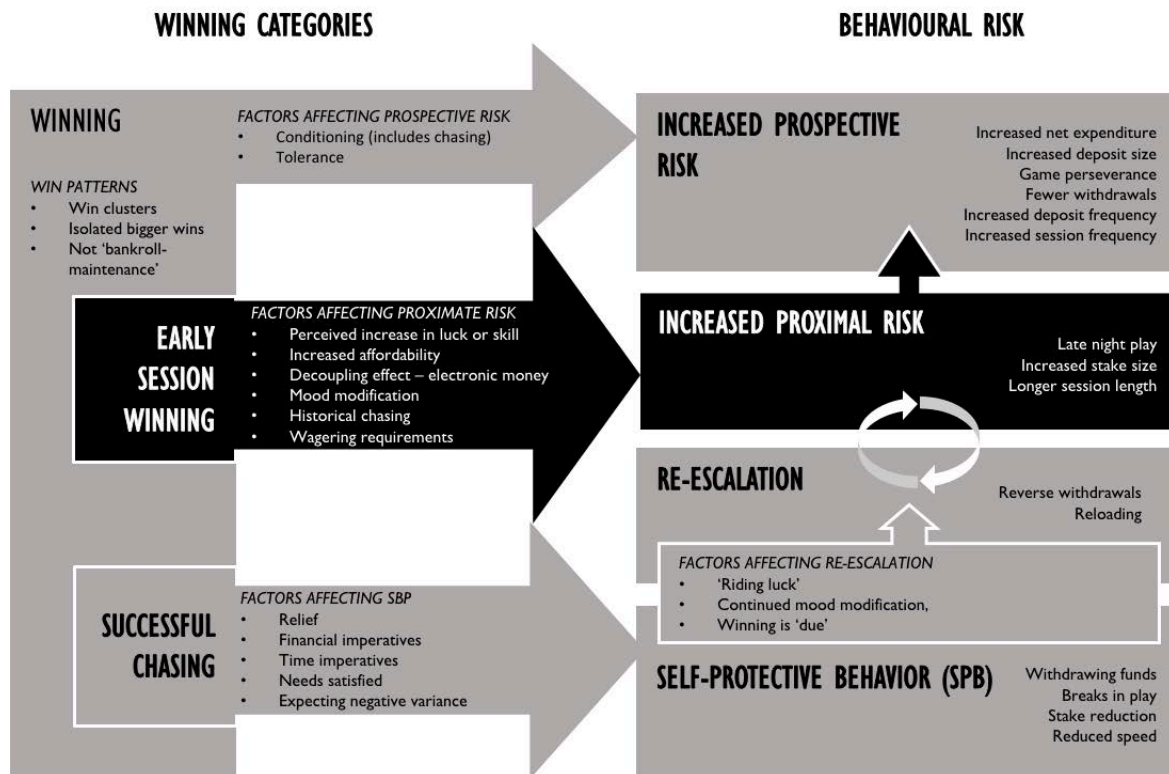
Proximal risk refers to risky behaviours that tended to directly follow *early session winning*. An increase in gambling intensity may pose various risks albeit except for immediate financial risk. This risk category appeared to be manifested through three concepts: (a) *increasing stake size*, (b) *longer session duration* and (c) *late night play*. Data from interviews revealed possible explanations for the links between early session winning and proximal risk including (a) *perceived increase in luck or skill*, (b) *bankroll boosts*, (c) *decoupling effect of electronic money*, (d) *mood modification*, (e) *historical chasing and (f) wagering requirements*.

6.3.1   Concepts of proximal risk

The most commonly observed proximal risk was *increasing stake size*. For some participants, being in profit and having an enlarged bankroll afforded the opportunity to play at higher stakes:

> *"With certain games, returns can be phenomenal on tiny bets. You'd often find myself and others grinding 9p bets on this or other games to achieve spectacularly disproportionate returns. I have achieved £600+ on such a small bet, but often this is bittersweet as ideally one would like to build up a workable balance and then bet a bit higher. Ideally, I'd start with £20, bet 9p for ages, get a good bonus round and find myself at £80 - £100. That is realistically a good result to get for your input. With this money, I'd then go to 18 - 70p bets and bet relative to my bankroll, all the while hoping to replicate a similar or better result".*
> Participant 7, M, Age 37, PGSI=8

Figure 9 illustrates an example from the above participant's remote gambling behaviour. It shows that following a win equal to around 300 times the original stake in the early stages of the gambling session a decision is taken to triple stakes from £0.09 to £0.27.
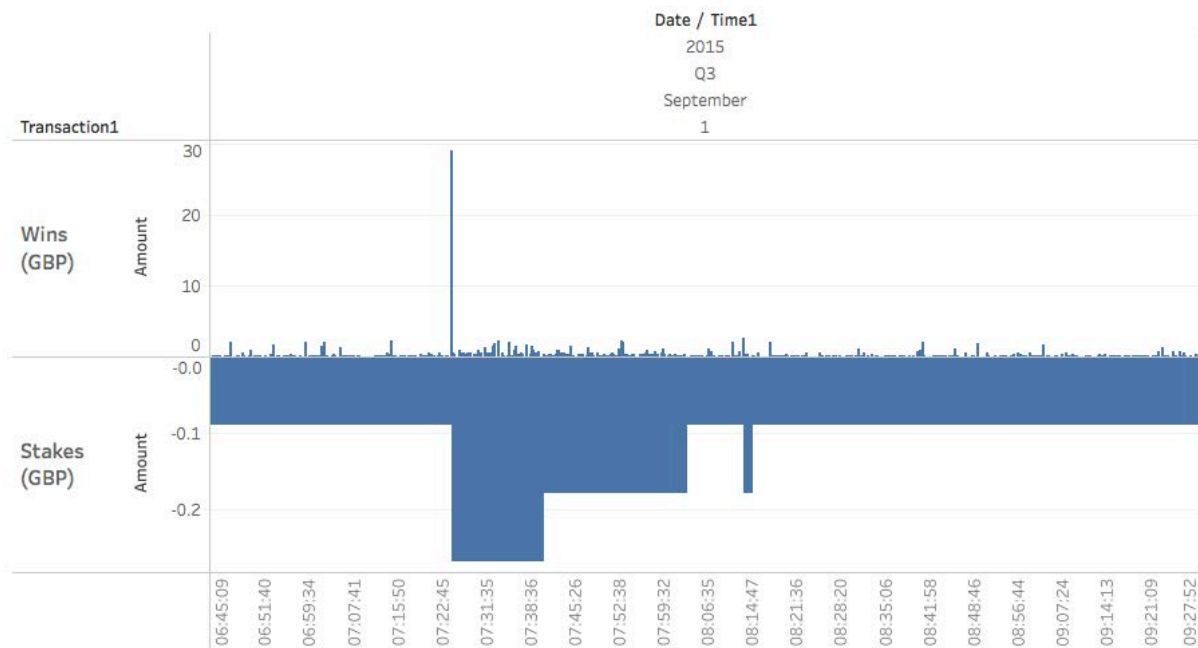
FIGURE 9. INCREASING STAKE SIZE AS A PROXIMAL RISK [PARTICIPANT 7, M, AGE 37, PGSI=8]

A *longer session duration* was also likely to follow early session winning. Figure 10 illustrates gambling activity of a problem gambler by days and clearly shows that the early session winning lasted between 2-12 times longer than other sessions where early session winning was absent. Admittedly, extended play may be viewed as a common-sense implication of having more money with which to gamble. However, while increased affordability mitigates any immediate financial risk, extended play may increase the risk of gambling-related harm in relation to time loss or pre-occupation. Further still, financial risk could escalate as winnings dissipate, more money is deposited, and the gambler remains engaged because of heightened expectations of winning (see *factors affecting re-escalation* below).

A logical extension of the risks of a longer play duration is *late night play* (also depicted in Figure 10). While time-of-day trends among problem gamblers often featured late night play, late sessions may be further extended as a consequence of early session winning. The potential for harm from *unsociable hours* is discussed in the *Evolving Remote Features* model.
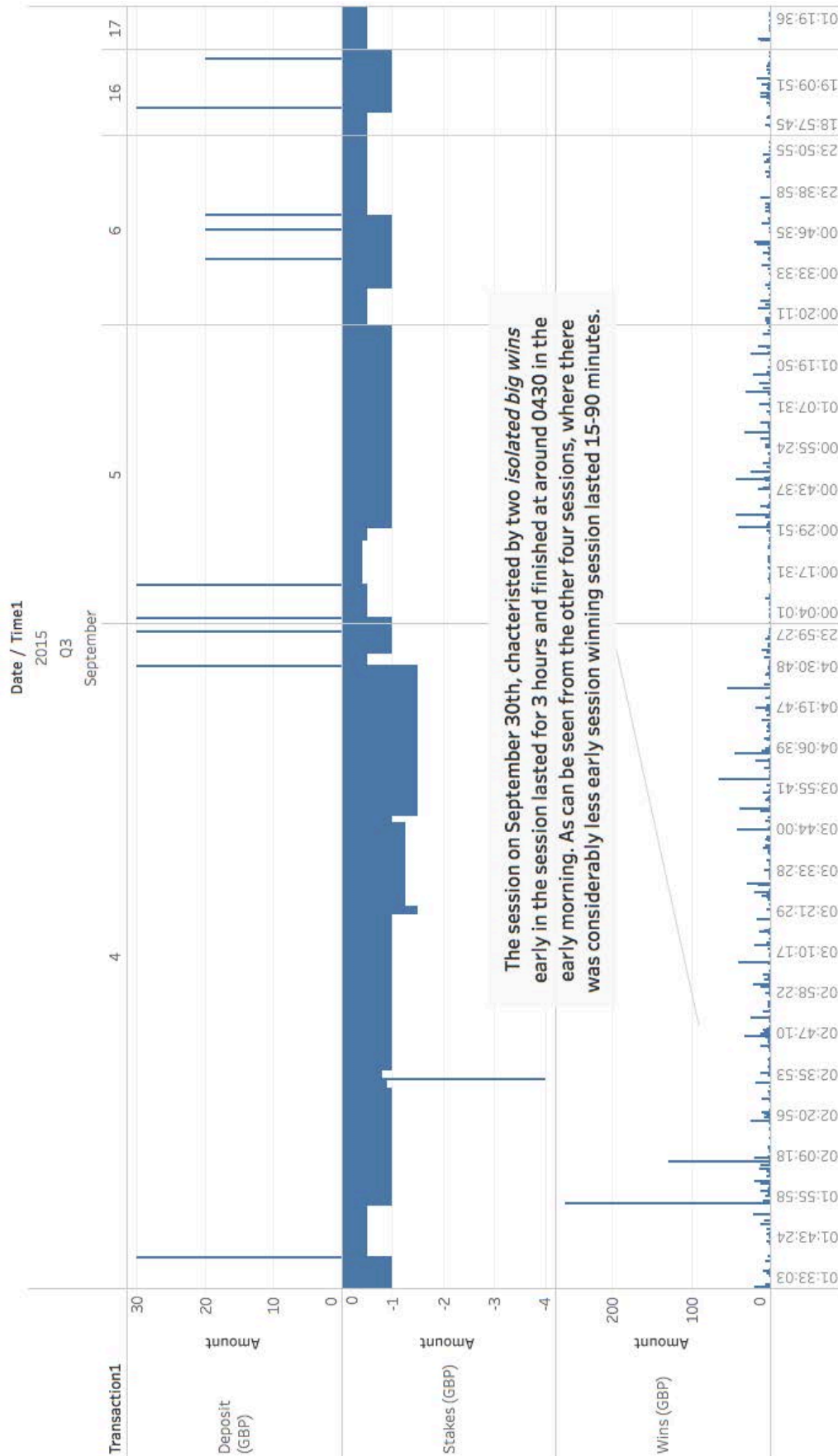
FIGURE 10. 'LONGER SESSION DURATION' AND 'LATE NIGHT PLAY' AS PROXIMAL RISK [PARTICIPANT 66, M, AGE 46, PGSI=11]

The session on September 30th, chacterised by two *isolated big wins* early in the session lasted for 3 hours and finished at around 0430 in the early morning. As can be seen from the other four sessions, where there was considerably less early session winning session lasted 15-90 minutes.

6.3.2 Factors affecting of proximal risk

Player discussions indicated that early session winning may result in *increased perceptions of luck or personal skill* which subsequently raised expectations for further winning and increased willingness to continue gambling:

> *"When on a good winning run it's a feeling of not being able to believe your luck coupled with an inflated sense of skill. No matter what you do the wins keep coming and is a far better way gamble than the dread and uncertainty of chasing losses…I suddenly sense that I have a decent chance of hitting something bigger than before and forget how I ended up in this position. The adrenaline starts kicking in now and you generally believe if it happened before, surely it can again?"*
> Participant 7, M, Age 37, PGSI=8

Early session winning increases the available balance (or bankroll) in the gambling account. Players perceived that this *increased affordability* (i.e., *bankroll boost)* permitted increased risk taking and/or extended play by adding a financial buffer and removing the need for further deposits. It is possible that the increased balance and perceived decrease in financial risk may lead to reduced vigilance and a voluntary reduction in self-control:

> *"After I've had a big win I feel like my luck will stay with me and it's this that makes me increase my bets i.e., increase the risk ... it's because it's money I never had and if the big bet loses it doesn't hurt so much ... If I win say £1000 and lose it back quickly I go mad but it does stop me from betting for a while as I know I am just going round in circles…"*
> Participant 85, M, Age 51, PGSI =12

This participant further extended the notion of increased affordability by describing a financial position commonly referred as 'free-rolling' – a situation in which it is perceived that he is not losing his own money but that of the gambling operator. Adopting this position appeared to lead him to undervalue winnings, view as credits rather than money and be more accepting of losing back to the operator:

> *"I now know to only bet £20 a week max now because if I won say £5000 with that £20 I would just lose it all back as gamblers always do ... its [sic] sort of I got it for nothing so if I lose it all back I've only lost £20 .... kinda [sic] easy come easy go attitude."*
> Participant 85, M, Age 51, PGSI =12

Viewing money won as a tool for continued play rather than necessarily an increase in personal wealth may in part be attributed to *a decoupling effect* whereby the less tangible features of electronic money may facilitate spending and inhibit withdrawals:

> *"I won £10,000 almost immediately but that never became a reality as I gambled every penny. They were just numbers on a screen. I've won so many times but never withdrawn anything."* Participant 62, F, Age 34, PGSI=9

At the end of the following extract, a problem gambler indicates that a withdrawal may represent best intentions, but in the moment, the combination of free-rolling, the cognitive devaluation of electronic money and the desire to sustain the feeling of winning, together culminate in withdrawal failure:

> *"It's very difficult to not resist having another bet whilst winning... its [sic] like a drug .... it's very frustrating to lose money you have won but it hurts a lot lot [sic] more if you have deposited it from your bank account. It all feels so real then ... winning online and then losing it is not really a problem for gamblers as it's only something to worry about if you have to*

deposit... The winning on screen are a bit like bit coin money ... its[sic] not real until you withdraw the winning... its[sic] always best if you win, withdraw it straight away ...but your brain is only thinking about the next bet."
Participant 85, M, Age 51, PGSI =12

Also, emerging from the participants' discussions was the reinforcing nature of early session winning through its capacity for *mood modification*. The drive to sustain these positive feelings was suggested to increase the risk of persistent play:

"When I've been lucky enough to get a big win early I carry on to see if I can win even more as am then on a high and nothing can stop me or a lot of people from having another bet as the buzz sets in ... very rarely do I stop after an early win ... It's because I want that buzz again .. its [sic] like a drug .... that's why betting is what it is ... its [sic] addictive....".
Participant 85, M, Age 51, PGSI =12

Within the parameters of a single session of gambling, successful chasing may prompt SPB; this is an important theoretical category proposed in this model. However, as the following participant indicates, 'winning' may increase the intention to make financial reparation extending beyond the current session to long-term *historical chasing* (i.e., money lost in previous sessions):

"I may have poured £500 into a game over hours/days/weeks without results, and now I've broken even. Most likely is my desire to make amends for my past losses and look onwards, so I'd not withdraw any of it really - I'd written the money off already in the back of my mind after every deposit. I'd raise my bets and look to get beyond equalling [sic] my deposit totals and really go to town. All having a larger bankroll equates to is being permitted to bet bigger. The obvious pitfall to this is that relatively speaking, betting £2 a spin can go just as quickly as doing 20p bets with a £50 balance, so that feeling of elation can turn sour before you know it."
Participant 2, M, Age 30, PGSI=25

Finally, in circumstances where a player accepts the *wagering requirements* of a promotional bonus, persistent play may simply the reflect the desire to satisfy these requirements in the knowledge that funds cannot otherwise be withdrawn:

"Many low-rollers like bonuses and of course they are not always beatable. If hitting early on a bonus for example it often means little upon realizing that you still have £2000 of wagering to do. So the joy of early hits is dependent on the circumstances."
Participant 7, M, Age 37, PGSI=8

6.4   THEORETICAL CATEGORY 2: SUCCESSFUL CHASING LEADS TO SELF-PROTECTIVE BEHAVIOUR
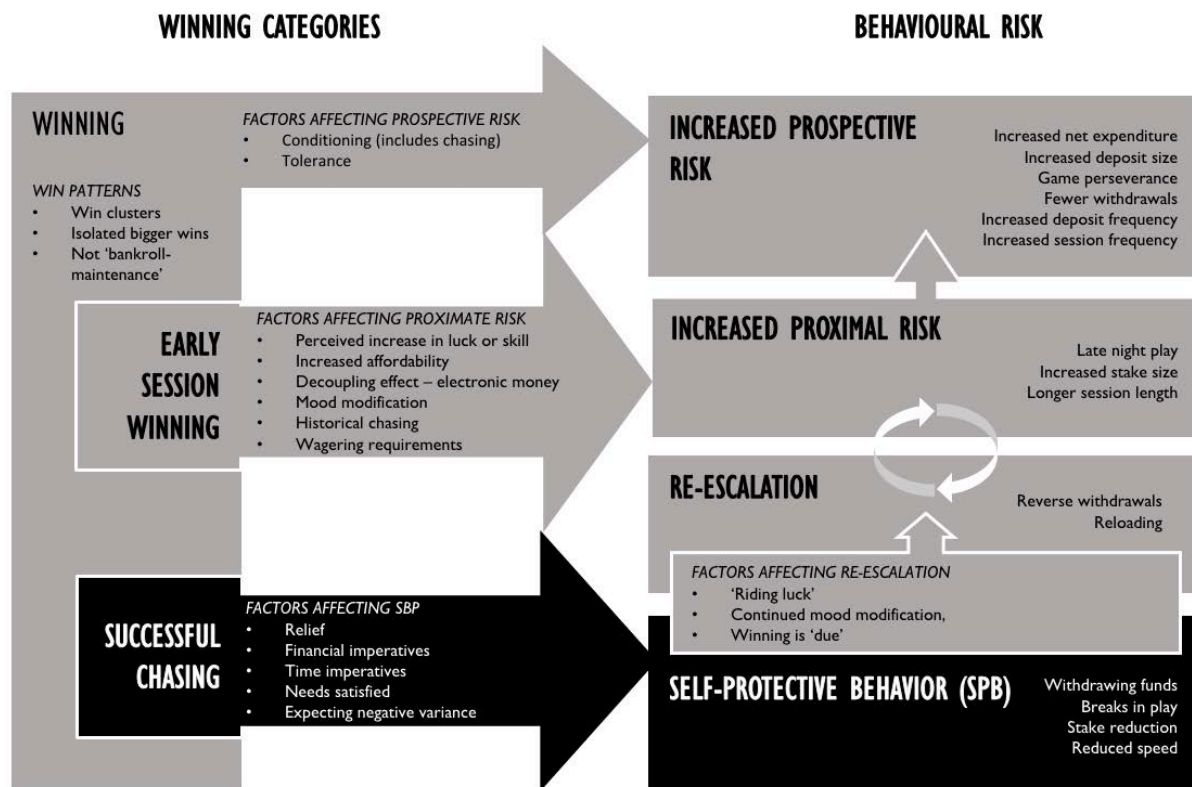
A category of reduced behavioural risk referred to in this model as *self-protective behavior (SPB)* was observed to follow a period of *successful chasing*. *SPB* seemed to manifest through four concepts: (a) *withdrawals*, (b) *breaks in play* (c) *reduced bet frequency* and (d) *reduced stake size*. Interviews with problem gamblers generated a range of insights that could explain the link between successful chasing and SPB and these included: (a) *financial imperatives*, (b) *relief*, (c) *time imperatives*, (d) *need satisfaction* and, (e) *expected negative variance*. A full example demonstrating this theoretical proposition is provided as a storyboard in Figure 11.

6.4.1   Concepts of SPB

One of the most salient forms of *SPB* observed from problem gamblers behavioural data was the *withdrawal of funds* from their gambling account. A withdrawal was usually the first form of SPB and may be followed by any or a combination of other SPB. Problem gamblers usually did not withdraw the full balance from gambling account but instead retained a small portion of funds to continue gambling. Exactly how much was withdrawn varied but withdrawal amounts could often reflect the total amount deposited for that session or some players opted to retain funds similar to the value of their usual deposit amount. Indeed, withdrawing the full amount was unusual and tended to occur after very long sessions or volatile periods of chasing.

Breaks in play usually followed withdrawals and varied in duration. The precise nature and motivation for a break-in-play remains unclear. It is likely that this construct reflects one of two realities: (a) it was a planned break or (b) it was a failed attempt at stopping for the day but the player capitulated and returned to gambling despite best intentions.
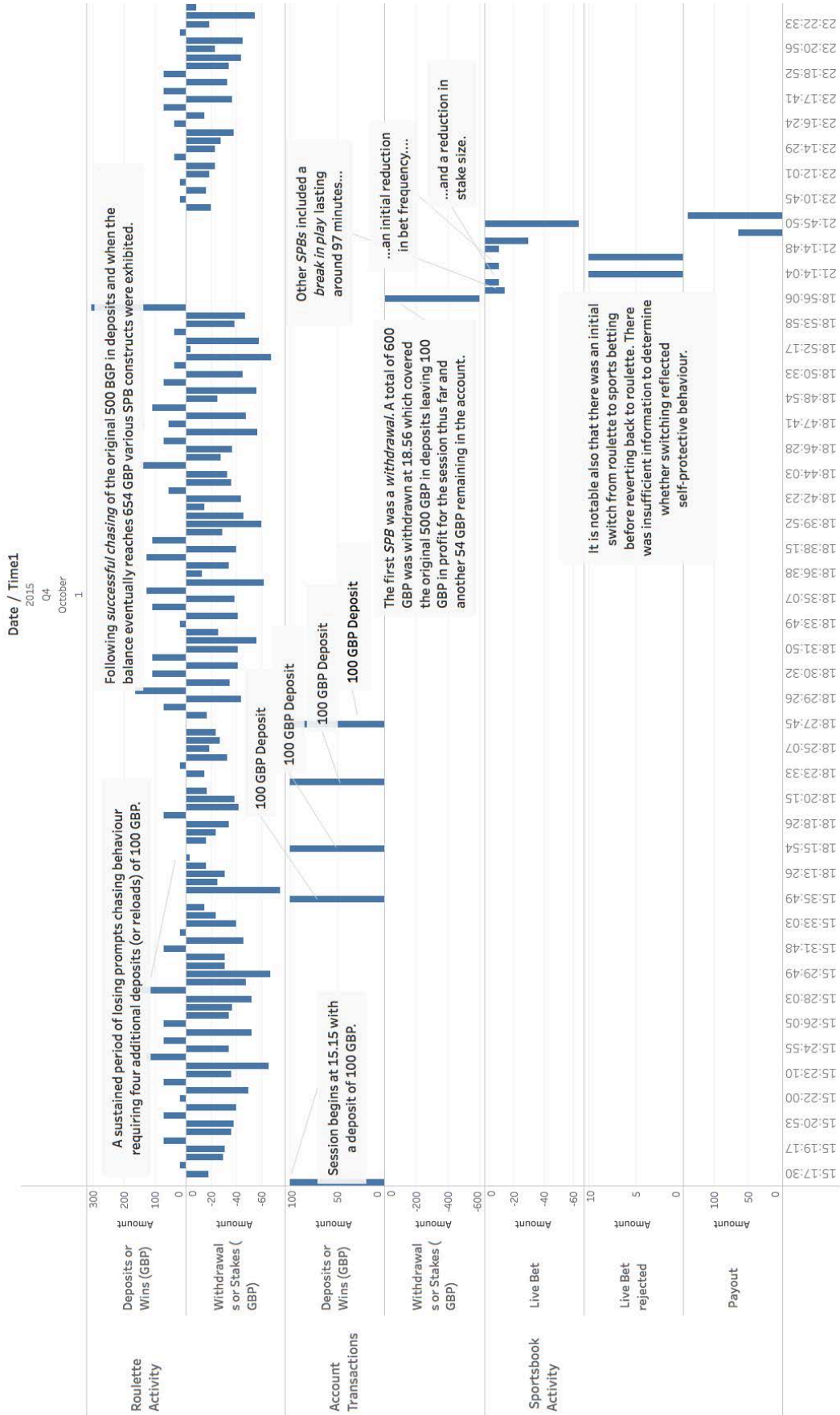
FIGURE 11. STORYBOARD ILLUSTRATING SPB FOLLOWING SUCCESSFUL CHASING [PARTICIPANT 23, M, AGE 32, PGSI=10]

Reductions in bet frequency tended to go together with a change in product type. For example, in Figure 11, at the time of around 20:37, the participant started to bet (at lower stake sizes, and at a reduced bet frequency) on sports, whereas previously in the day roulette was the game of choice. While there was a general trend for problem gamblers to *reduce stake size* following successful chasing, data revealed this to be the most erratic and short-lived SPB.

6.4.2   Factors affecting of SPB

Interview data suggested that *SPB* could a result from *financial imperatives* involving the need to prioritise essential expenditures and averting shortfalls in income that might lead to a crisis. One participant, for example, identified that:

> *"After I lost around £3000 over a 2-month period I won £2600, the feeling of relief was pretty overwhelming. I won most of it playing on roulette online... I knew I had no choice but to withdraw at least £1500 as I had some bills that had to be paid or I was in big trouble."*
> Participant 85, M, Age 51, PGSI =12

Another participant speculated that if a win was sufficiently large, that it might prompt him to deviate from his usual practice of retaining funds in his account and opt for withdrawal:

> *"Getting big wins is something I'm becoming more indifferent to the longer I play as I have seen how erratic games can be, but that's not to say that if a truly monumental win came along that I'd not be sensible enough to withdraw that."*
> Participant 2, M, Age 30, PGSI=25

It was also suggested that if there were insufficient betting options to sustain his interests, this would prompt a full withdrawal:

> *"If I am down 400 pounds and I win 500, I would cash out 400 and keep 100 to play with it. If it is a low season with no football games, I might withdraw everything."*
> Participant 42, M, Age 34, PGSI=20

Alternatively, it was suggested that withdrawals may simply be prompted by the desire to make non-gambling-related purchases and not necessarily a financial imperative:

> *"There is no set amount for when to stop really, except in rare cases where you want to buy something with the money in particular but that is not at all typical."*
> Participant 9, M, Age 28, PGSI=12

Related to financial recovery some participants expressed a sense of *relief* from successful chasing. However, as one gambler explains, while this may prompt SPB in the form of at least a withdrawal, the desire to continue gambling remained:

> *"If I lost say £400 and then won it back I would normally be happy to have got it back and think thank god for that and keep most of the money I won back but I would still definitely have at least 1more bet".*
> Participant 85, M, Age 51, PGSI =12

Time imperatives were also identified as a determining factor for withdrawals with boredom being a likely inhibiting factor:

"It's variable, if it was busy that week I'd probably be fine withdrawing the amount and can enjoy the money when it comes in but if I'm not up to much then just the boredom factor can set in and it's something to do to keep yourself busy."
Participant 2, M, Age 30, PGSI=25

It was also expressed that there would be increased willingness to withdraw and terminate a session following *need satisfaction*:
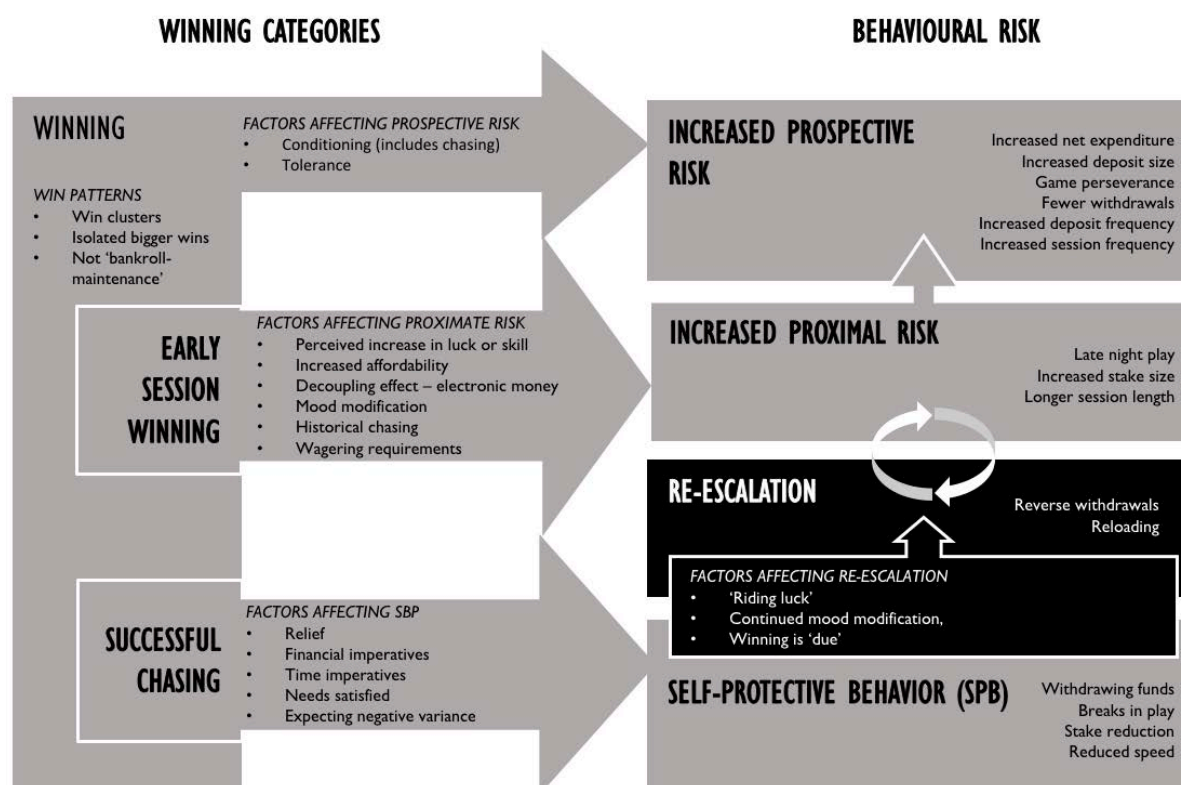
"Yet only after I feel content with how the session went and I've had my fill".
Participant 7, M, Age 37, PGSI=8

Expectations of negative variance can also be a factor. The same participant added that after a sustained winning period, he feared that luck may change for the worse, and that this can prompt SPB:

"I may get more cautious with my playing style as I know these runs can come to an end at any time. Better safe than sorry!"
Participant 7, M, Age 37, PGSI=8

WINNING CATEGORIES

BEHAVIOURAL RISK

WINNING

WIN PATTERNS
- Win clusters
- Isolated bigger wins
- Not 'bankroll-maintenance'

FACTORS AFFECTING PROSPECTIVE RISK
- Conditioning (includes chasing)
- Tolerance

EARLY SESSION WINNING

FACTORS AFFECTING PROXIMATE RISK
- Perceived increase in luck or skill
- Increased affordability
- Decoupling effect – electronic money
- Mood modification
- Historical chasing
- Wagering requirements

SUCCESSFUL CHASING

FACTORS AFFECTING SBP
- Relief
- Financial imperatives
- Time imperatives
- Needs satisfied
- Expecting negative variance

INCREASED PROSPECTIVE RISK

Increased net expenditure
Increased deposit size
Game perseverance
Fewer withdrawals
Increased deposit frequency
Increased session frequency

INCREASED PROXIMAL RISK

Late night play
Increased stake size
Longer session length

RE-ESCALATION

Reverse withdrawals
Reloading

FACTORS AFFECTING RE-ESCALATION
- 'Riding luck'
- Continued mood modification,
- Winning is 'due'

SELF-PROTECTIVE BEHAVIOR (SPB)

Withdrawing funds
Breaks in play
Stake reduction
Reduced speed

Behavioural risk tends to revert to, or exceed, previous levels following SPB if within-session gambling persists. The *re-escalation* category is distinctive by its weakening of *SPB,* and unplanned financial risks such as (a) *reverse withdrawals* or (b) *reloads*. Four explanatory factors emerged from the interview data: (a) e*xploiting positive variance (riding their luck)*, (b) *maintaining mood modification, (c) financial needs paradox* and (d) *expecting positive variance (perceiving a win is due)*. A full example demonstrating this theoretical proposition is provided as a storyboard in Figure 12.

6.5.1   Concepts of re-escalation

Re-escalation is consistently characterized by the decision to *reverse a decision to withdraw* money from a gambling account. Following a withdrawal request, it can take several days to reach the customer's account. The *reverse withdrawal* facility renders those funds immediately available within the account. One of the problem gamblers interviewed suggested that a positive relationship may exist between the time it takes to withdraw from a gambling account and the likelihood of a reversing a withdrawal to restart gambling:

> *"£200 in your bank account is immediately accessible, you know it's there. I would occasionally get somewhat paranoid in the case of big wins and think that the casino would try to withhold the money on a technicality and hold the money or at the very least really delay the withdrawal. The longer the withdrawal time was the more tempting it was to use the money again as it seemed less real. "*
> Participant 42, M, Age 34, PGSI=20
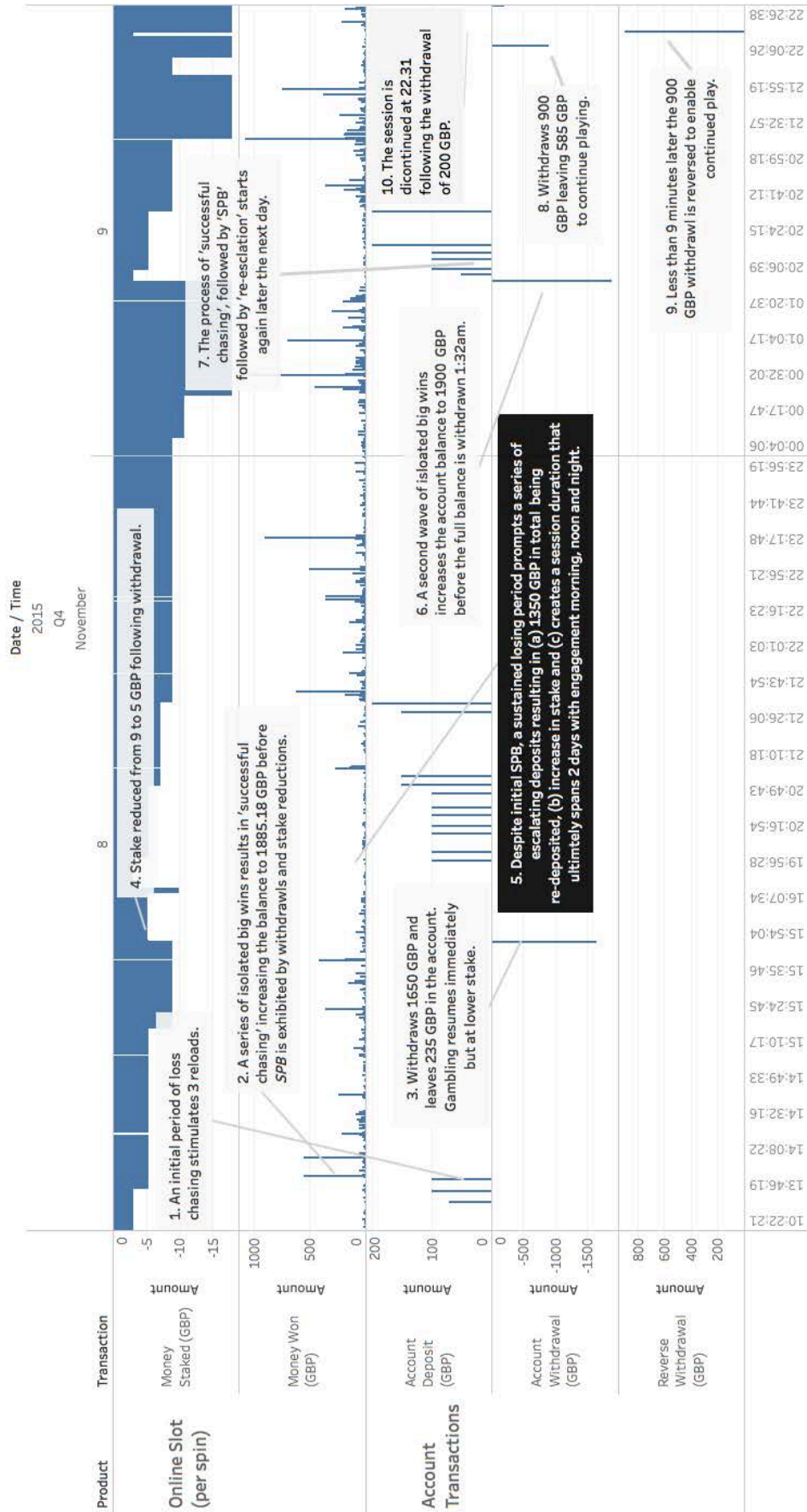
FIGURE 12. STORYBOARD ILLUSTRATING 'RE-ESCALATION' EMERGING FROM SPB [PARTICIPANT 72, F, AGE 29, PGSI = 9].

Another problem gambler expressed strong views regarding the reverse withdrawal option:

> *"Before my big win my intention was to withdraw 90% of the win and leave myself a allowance to play with but due to the reverse withdrawal option my stakes almost doubled then you chase a win and gamble almost all of the winnings. I have won big money lots of times but never withdrawn it because the reverse withdrawal option. It shouldn't be an option…But my intention is to buy nice things with my win, I round off the number as I reverse withdraw. I'd say to myself just £500 then again and again till I end up with not a penny but depressed. It's the worst habit there is."*
> Participant 62, F, Age 34, PGSI=9

Reloads refer to additional deposits within the same session. We would argue that a reload is, at the very least, indicative of a disconnect between spending intentions and spending behaviour. We think an intention to make multiple deposits in a single session would serve no useful purpose and accordingly, such reloads are likely to only reflect unplanned spending. The concept of escalating risk in reloading can manifest in two ways: (a) more frequent deposits, and/or (b) deposits increase in value. As demonstrated in Figures 12 both may occur simultaneously.

6.5.2 Factors affecting re-escalation

Discontinuing gambling when 'winning' appeared to be difficult for this sample, particularly those holding strong beliefs in luck and using other heuristics. Problem gamblers expressed a desire to take advantage of what is perceived to be a winning streak (or riding their luck). Such attempts at *exploiting positive variance* can lead to persistent play at least until experiencing a period of sustained losing. As one participant describes:

> *"Finishing up overall is obviously the ideal but you always have a sense of unfinished business if you're winning which is obviously helpful to the casinos as long-term they win…It's just the fantasy of winning even more, you feel like your luck is in. It's mostly financial but there is another part of it, it feels like a game that you're winning and you can get an even higher amount there is an odd sense of achievement, despite it being nothing but luck."*
> Participant 42, M, Age 34, PGSI=20

In a previous section, *mood modification* had been identified as a reason for persistent play following early session winning. Data revealed that this may also occur after a period of successful chasing particularly if a win results in a net profit for that session. For example, one problem gambler indicated even after a withdrawal, a portion of funds would be retained to continue gambling in search of further 'winning' to sustain mood enhancement:

> *"When my average withdrawal might be to break even or make a £20 profit, a £500 wonder hit not only allowed me to withdraw a sizeable chunk but also to leave some more in there, as it turns out the continuation of that feeling is almost as important as the money itself."*
> Participant 2, M, Age 30, PGSI=25

Interviews also revealed an interesting concept which we have referred to here as the *financial needs paradox*. In situations where the disposable income was exceeded, and subsequent expenditure was earmarked for essentials such as bills, rent or mortgage payments, for example, problem gamblers may perceive continued play to recover 'earmarked losses' to be a rational decision:

> *"Logically yes, it's a really stupid position but when panicking you can get into a position where you're actively ignoring the rational part of your brain as you don't want to deal with*

the consequences at that moment. Also, if you have just lost enough money that you can no longer pay a bill or another debt, you can think you might as well deposit even more as you're already going to be unable to meet those financial commitments for the month so it's worth the risk of trying to chase so you might be able to. This only ever lasts during the moment, afterwards you do realise how irrational you were, even in the case of you actually winning back the losses there can be a sense of guilt or self-awareness at the ridiculousness of the situation you have let yourself get into".
Participant 42, M, Age 34, PGSI=20

If further extended play results in a period of losing, interviews revealed that this may re-escalate behavioural risk through *expectations of positive variance*. In other words, they think their luck is about to change and begin to have raised expectations that 'winning' is due. In the following extract, the testimony of one problem gambler reflects on how their conditioning history facilitated persistent play against his better judgement:

"Sometimes a session will flatline so badly that you anticipate the outcome well before it happens but plough on anyway, and rarely are these predictions ever wrong.   This isn't even subtle most of the time, and I think most will resign themselves to their slot fate well in advance, all the while hopeful of getting that comeback that can and does happen, albeit very rarely. This is where being a veteran slotter has its shortcomings, because they are likely to draw on a form of slot nostalgia almost, wheras [sic] a newbie will just run for the hills or get bored. I had a dreadful run just the last couple of days, not too much money lost but every game I touched would not turn. I chased a bit of course, and even now I still feel that a good hit is due!"
Participant 7, M, Age 37, PGSI=8

Continued gambling to *'ride one's luck'* and continued gambling *expecting bad luck to come good* may initially appear to be contradictory explanations. Put another way, this means persistent gambling promulgated by wanting to avoid stopping before (a) a winning streak ends or (b) a winning streak begins. After all, if both processes were in operation then this could essentially mean that a problem gambler is continually drawn to persistent play. Indeed, this may well be the case in situations where individuals' expectations of winning are influenced by recent gambling outcome and there is a heavy reliance on gambling-related heuristics. In other words, cognitive biases that shape interpretations of the implications of winning or lack thereof, may prove to be a particularly powerful determinant of persistent play.

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6.6   THEORETICAL CATEGORY 4: WINNING LEADS TO PROSPECTIVE RISK
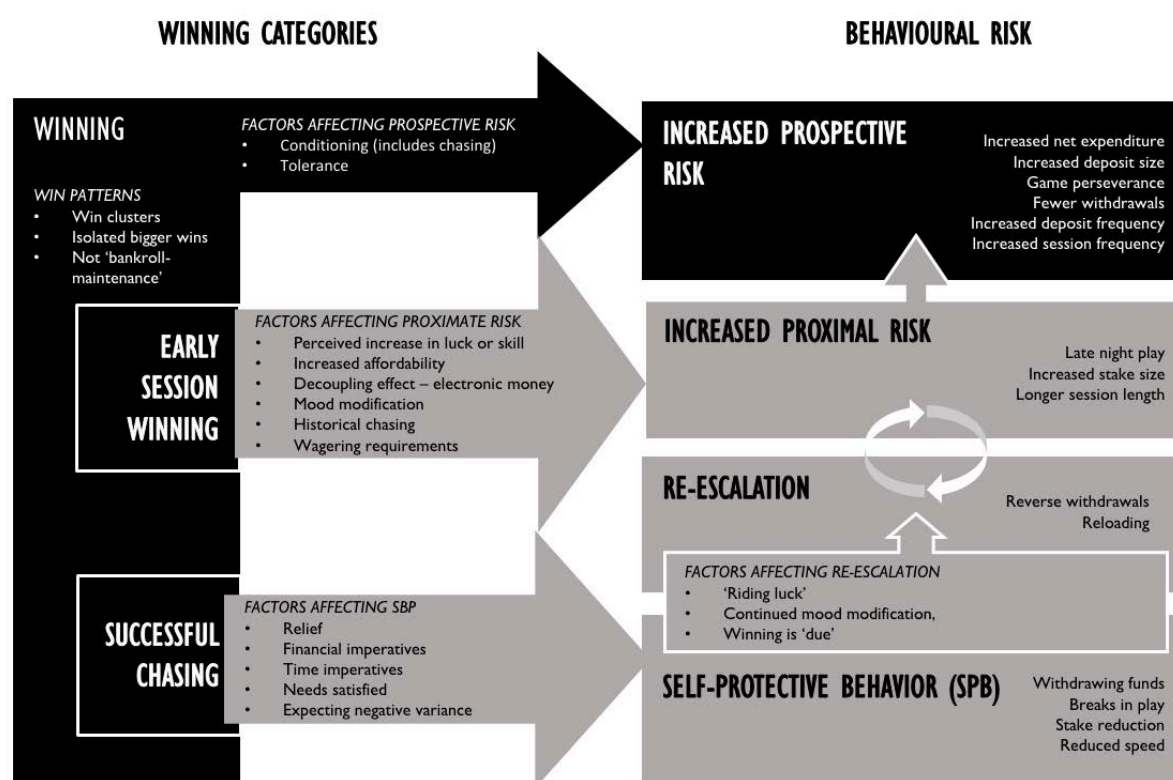
Prospective risk refers to potentially risky behaviours exhibited in subsequent sessions. While the enduring impact of this category remains unclear, it does appear to persist over multiple days and sessions. Initial indications are that prospective behavioural risk eventually dissipates likely reflecting a combination of conditioning by punishment (e.g., losing and its associated consequences) and reduced affordability. Prospective risk emerged as the most salient theoretical category and was most evident through one or more of six concepts: (a) *increased net expenditure,* (b) *increased deposit size,* (c) *increased deposit frequency* (d) *fewer withdrawals*, (e) *increased game perseverance*, and, (f) *increased session frequency*. The explanatory mechanisms emerging from interviews regarding this theoretical proposition included: (a) *tolerance*, and (b) *conditioning*.

6.6.1   Concepts of prospective risk

The primary form of prospective risk observed was *increased net expenditure*. Perhaps unsurprisingly, this construct is usually accompanied by an increase in any combination of *deposit-related variables* and/or *increased stake size* (see Figures 13 and 14 for examples). A trend was also observed whereby players developed a preference to play games on which they had experienced a recent period of 'winning', principally 'isolated big wins'. Importantly, problem gamblers at times exhibited *increased game perseverance*, a situation that may diminish self-control and increase the cost of play. Figure 15 exemplifies this tendency towards game perseverance in relation to Participant 37. By comparing dates and times of periods of 'winning', and the largest 'isolated big wins' for the participant using Figure 13 the win-associated game is subsequently played more than any other game by a considerable margin. This period of persistent play may be interspersed with brief experimentation with other games but then subsequent gravitation back to the game associated with 'winning'. Furthermore, sustained periods of losing with that same game appears to reverse this process. A longer timeline of data (i.e., extending beyond three months) would be required to explore the persistence of this construct with greater confidence.
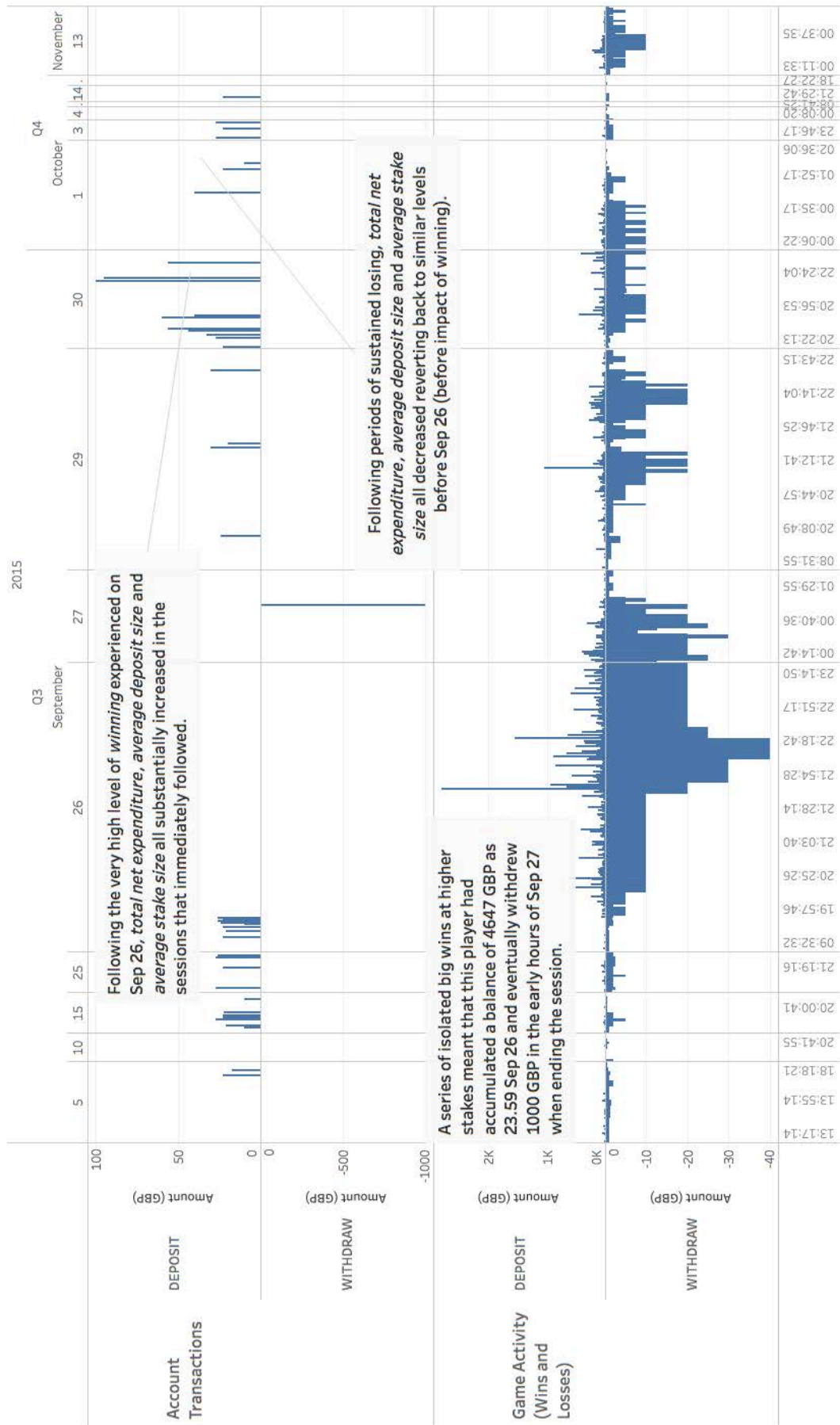
FIGURE 13. EXAMPLES OF INCREASED DEPOSIT SIZE, NET EXPENDITURE AND STAKE SIZE FOLLOWING WINNING [PARTICIPANT 37, M, AGE 34, PGSI=15]
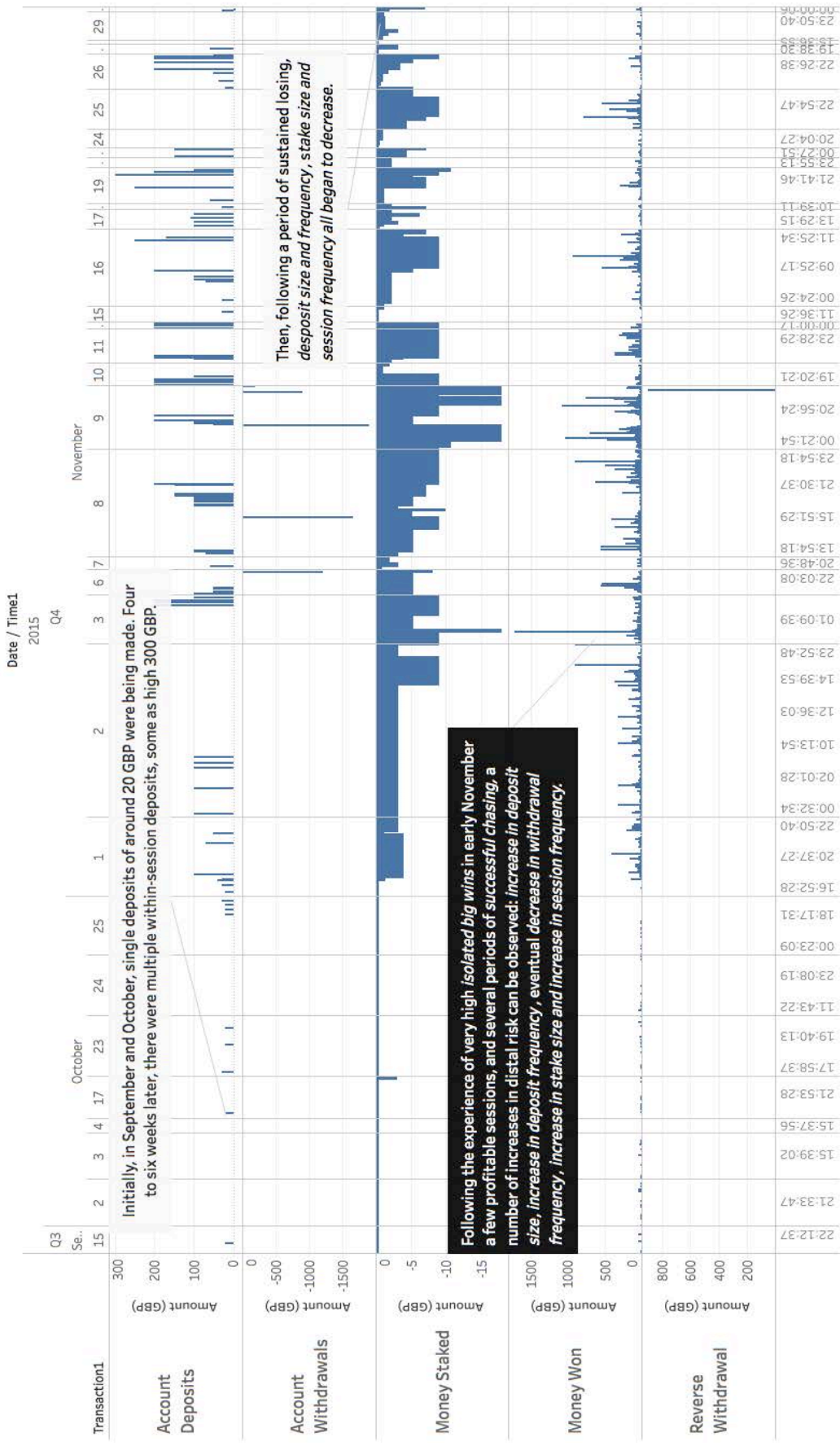
FIGURE 14. PROSPECTIVE RISK EXAMPLE INCLUDING FEWER WITHDRAWALS AND INCREASED DEPOSIT AND SESSION FREQUENCY [PARTICIPANT 72, F, AGE 29, PGSI = 9]

6.6.2 Factors Affecting Prospective Risk

Tolerance in gambling is defined as the need to increase dose to generate similar levels of excitement (Blaszczynski, Walker, Sharpe & Nower, 2005) and is considered a core component of addiction (Griffiths, 2005). However, existing literature remains unclear as to whether increased risk taking such as placing larger bets and heightened expectations of win size reflect tolerance or simply reflect the instrumental motivation of financial recovery (Blaszczynski et al., 2005). However, a few participants in this sample did allude to the role of tolerance particularly in relation to expectations of winning:

> *"My views on what constitutes a big win have been skewed over a relatively short timeframe. Four years ago, had I won £30 on a small bet I would have fled to the cashier and called it a night, almost pleased with my efforts, I find myself wanting to replicate what I consider worthwhile wins and cashouts [sic] and this is what I consider a major downside to gambling. Perhaps if I hadn't had such good results prior with £1000+ cashouts [sic] I'd be happier with small wins of £50 -100. Now, I just consider these a means to an end, it's go for it or go home. These wins don't classify as large wins when really they ought to, but I just view them as balance- boosters".*
> Participant 7, M, Age 37, PGSI=8

> *"My expectations have changed over time, in that breaking even will no longer suffice. It's more of a boom or bust scenario, which understandibly seems crazy from an outside perspective, and I used to be content with my lot."*
> Participant 2, M, Age 30, PGSI=25

Conditioning was also implicated with prospective risk. Intermittent successful chasing was identified by participants as a factor that might increase risky behaviours over time in subsequent gambling sessions. In Participant 7's account he explains that the strength of previous successful chasing is both strong and pervasive, and can drive persistent gambling even in the acknowledgement that hope may be slim:

> *"There is an underlying feeling of unfairness when it comes to slots that it's as if the game 'owes' us something. Therefore, when musing over these supposed 96% returns one always expects the slot to come good, even if later rather than sooner. I think the worst thing to happen to any type of gambler is getting that unthinkable hit when close to busting, as it stays with you for a long time and subconsciously drives you on to keep playing, even when all the signs point towards an imminent bustout."*
> Participant 7, M, Age 37, PGSI=8

Again, there will likely be a range of other factors that mediate the links between winning and prospective risk and the above only reflect those factors that emerged from interviews with problem gamblers in this study.
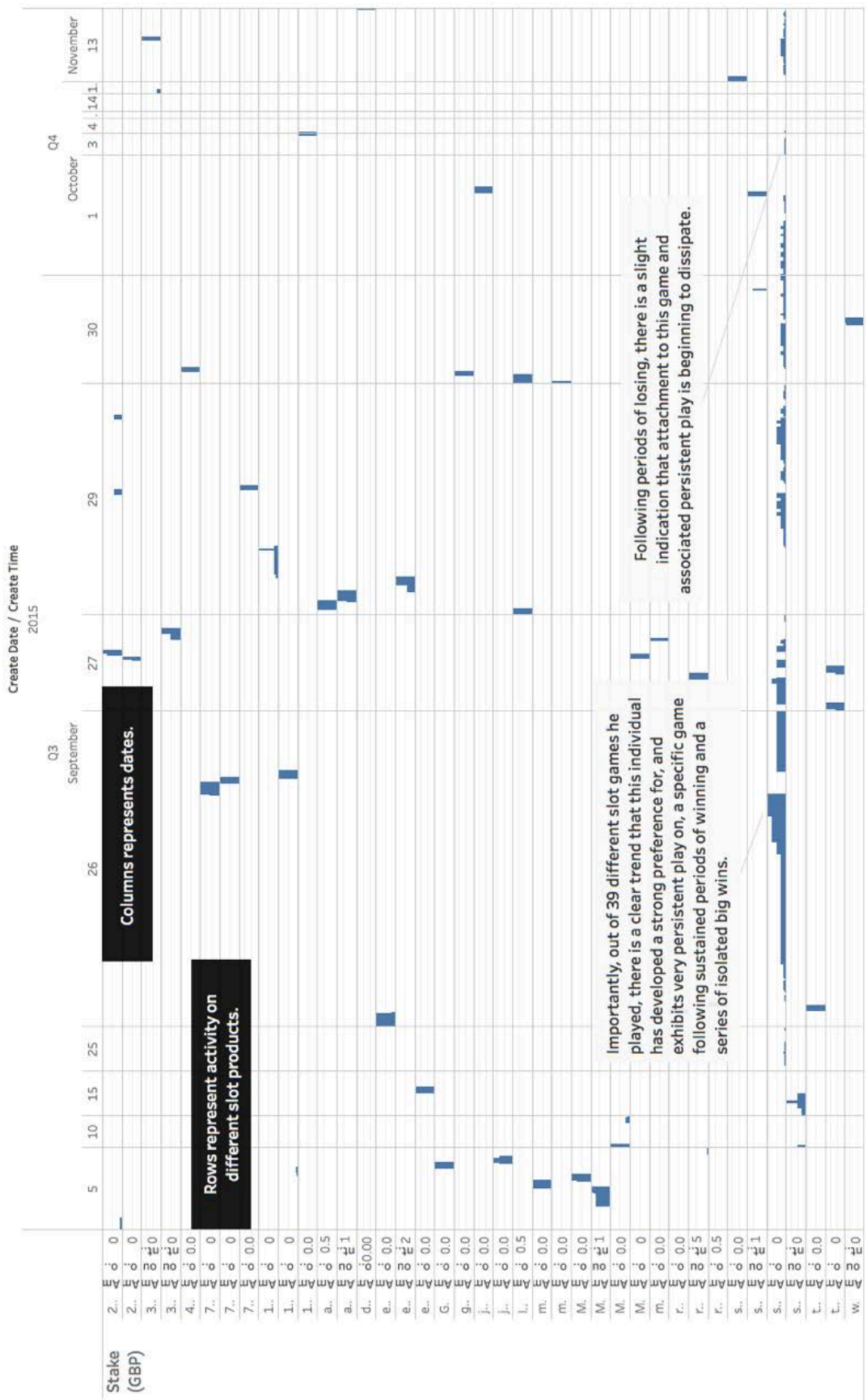
FIGURE 15. EXAMPLE OF INCREASE GAME PERSEVERANCE [PARTICIPANT 37, M, AGE 34, PGSI=15]

The following text labels appear within the figure:

Create Date / Create Time

Columns represents dates.

Rows represent activity on different slot products.

Importantly, out of 39 different slot games he played, there is a clear trend that this individual has developed a strong preference for, and exhibits very persistent play on, a specific game following sustained periods of winning and a series of isolated big wins.

Following periods of losing, there is a slight indication that attachment to this game and associated persistent play is beginning to dissipate.

Stake (GBP)

7 DISCUSSION AND RECOMMENDATIONS

The objective of the research was to identify problematic patterns of gambling behaviour in remote settings, and produce a contextualised understanding of the key behavioural and cognitive processes involved. Emphasis has been placed on generating further understanding of problem gambling in remote settings, and identifying new variables and behavioural processes that require further investigation and consideration with respect to responsible gambling initiatives.

With respect to the 'problematic patterns of remote gambling', behaviours indicative of financial risk or pre-occupation are given primacy of attention with respect to gambling-related harm, because they are recognised as the most immediate, first order harms to emerge from excessive gambling (Langham, Thorne, Browne, Donaldson, Rose & Rockloff, 2016). However, it is important when evaluating the behavioural and cognitive patterns of problematic gambling observed in the current study, to note that harm to emerge from gambling is heterogeneous and that we must consider longer term negative consequences, and harms experienced beyond the gambler themselves (Langham, Russell, Hing & Gainsbury, 2017).

Essentially, it is important to consider the implications of problem gambling beyond immediate, short term financial negative consequences, and assess the breadth of harm experienced by the participants.

7.1 EVOLVING FEATURES: DISCUSSION AND RECOMMENDATIONS

We have summarised what we consider to be the key insights and implications from this study, in terms of research, trialling harm minimisation tools and for broader aspects of responsible gambling protocols. These points are discussed in detail below and summarised in Table 20.

7.1.1 Long Duration

Within the theoretical category of Long Duration, it was proposed that gambling sessions in remote settings often had an abnormally long duration, and that such excessive length of sessions were a result of three key factors. First, there is virtually an unlimited provision of sporting events to bet on, at any time during the day, which enables problem gamblers to continue gambling on sporting events indefinitely. Second, remote sports betting sites facilitate the rapid placement of a series of short odds (or *approximately 50-50*) bets which often can translate into frequent winning, and in turn, such returned winnings are available to re-stake and elongate the gambling session. Finally, in many instances in remote sports betting, players being permitted to cash-out betting selections during an event, means that problem gamblers can *cut losses* and retract a proportion of their original stake, which then can be re-staked and therefore prolong the gambling session.

The proposed grounded theory underlying the concept of Long Duration postulates that sports betting in remote settings, in many ways is converging towards rapid, continuous gambling activities such as online casino games. Problem gamblers within the study did not appear to be selecting bets methodically (i.e. based on inherent knowledge or evaluation), but rather bet selection appeared rather *haphazard* with respect to placing large volumes of bets in a rapid sequence, and on sporting events that were obscure with minimal media coverage and/or semi-professional. This is indicative of sports betting being approached by the problem gamblers in this cohort as being more chance-based than skill orientated.

TABLE 20. SUMMARY TABLE OF INSIGHTS AND IMPLICATIONS FOR MODEL 1

Theoretical Propositions	New Insights	Implications for Future Research	Implications for Trialling	Implications for Risk Detection and Responsible Gambling
5.3.1 Increased number of betting markets available for remote sports betting facilitates longer sessions for problem gamblers	Remote sports betting environments now offer vast range of betting markets, and thereby increased choice, contributing to a) rapid, continuous play; b) obscure betting events with players having limited knowledge and c) a wider betting 'window'.	*Explore if and how wider bet choice and 'bet obscurity' may be a risk factor for problem gambling *Explore potentially shifting motivations in sports betting (e.g., from mastery to distraction).	*Trial breaks-in-play for rapid, continuous sports betting, particularly for longer sessions. *Trial voluntary restrictions bet choice (i.e., within-product selective blocking).	*Add 'bet obscurity' (e.g., 3rd division Vietnamese Soccer) as a potential marker for risk; *Add 'bet continuity' (i.e., placing serial bets in short space of time) as a potential marker for risk; *RG tools pending trialling outcomes on breaks in play or bet choice restriction.
5.3.2 Short odds (lower volatility) betting increases win rate permitting money to go further	Wider bet choice increases scope for short odds betting. Technology available in remote gambling simplifies and expedites short odds betting.	*Explore why problem gamblers prefer low volatility when engaging in fast, continuous sports betting. *Explore relationship between fast, continuous sports betting and problem gambling.	*Trial voluntary restrictions on number of bets placed per session.	Not applicable until further research is conducted.
5.3.3 'Cash-out facility' extends sports betting session length for problem gamblers	Using cash out facility to cut losses with expected losing bets to enable further betting with the original stake therefore extending session length.	*Explore difference in cash-out use between problem and non-problem gamblers; *Explore how cash-out is used in different situations, for different products.	*Trial 'sessional time limits'; *Trial options for limiting how 'cashed-out' bets are re-staked; *Trial options to change facilitate in-play 'cash-out' to 'withdrawal.'	*Promotion and further development of time-based limit setting (acknowledging that currently this tends to be unpopular with players).
5.4.1 Vast live betting options within a single event facilitates rapid bet frequency and no reflection time for problem gamblers	*Remote gambling facilitates problem gamblers making a series of shorter bets relating to one event e.g., betting individual games in a tennis match rather than on the match result.	*Explore arousal and decision-making in relation to rapid, continuous sports betting on micro-events versus match betting.	*Trial breaks-in-play for rapid continuous sports betting; *Options to block 'live betting' over various time periods or for certain betting markets.	*RG tool development informed by outcomes of trialling breaks-in-play or live betting restrictions.
5.4.2 IT facilitates rapid bet placement creating more intense sessions for problem gamblers	*Additional support that remote sports betting environments are evolving with respect to instant depositing and bet placement permitting rapid, continuous play; *Rapidly losing a series of bets in a short space of time increases likelihood of reloading.	*Examine the impact of sessional rate of loss on problem gambling behaviour.	*Trial breaks-in-play for rapid continuous sports betting; *Trial restrictions on number of bets per day; *Trial restrictions on number of deposits per day.	*Further support for 'bet frequency per day' as a potential marker for risk; *Provide option to voluntarily remove or restrict reverse withdrawal feature.

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Theoretical Propositions	New Insights	Implications for Future Research	Implications for Trialling	Implications for Risk Detection and Responsible Gambling
5. 5.1 Pre-occupation facilitated by multiple, intermittent sessions throughout the day	*Pre-occupation is a direct form of gambling-related harm (i.e., attentional and emotional demands on gambler even when not logged in) with implications for further indirect harmful impacts (performance, financial etc., see Langham et al., 2016).	*Exploring impact of pre-occupation with gambling on social functioning and cognitive performance; *Exploring risks factors for preoccupation with gambling intermittent betting preferences.	*Trialling new RG feature: "Restricted Betting Window".	*Provide options to restrict betting window. *Promote or develop the role of '*daily bet frequency limits*' and similar RG tools. *Provide options to limit number of sessions (or logins) per day.
5.5.2 Pre-occupation facilitated by live betting and cash-out monitoring	*For cash-out to be used effectively monitoring is required and this may impact cognitive performance in occupational, education or social roles.	*Exploring difference in cash out use between problem and non-problem gamblers; *Exploring how cash-out is used in different situations, for different products.	*Trial options for limiting how 'cashed-out' bets are re-staked; *Trial options to change '*cash-out*' option to '*withdrawal*'.	*Provide options to restrict betting window. *Promote or develop the role of '*daily bet frequency limits*' and similar RG tools. *Provide options to limit number of sessions (or logins) per day.
5.6 'Unsociable hours'	*Potential risk of harm heightened regarding fatigue and subsequent occupational, educational and social functioning.	*Exploring transitions from evening betting in to 'early hours betting' *Explore impact of 'unsociable hours' gambling on decision-making within gambling session; *Sleep disturbances.	*Trialling new RG feature: 'Restricted Betting Window'.	*Provide options to restrict betting window. *Promote or develop the role of '*daily bet frequency limits*' and similar RG tools. *Provide options to limit number of sessions (or logins) per day.
5.7 Chronic use for mood modification	*Remote gambling provides an opportunity to very rapidly change one's mood state via the arousal created. *The speed and extent to which a player can replace boredom, stress or any other negative mood state, means that using remote gambling to manage mood state is perceived as rational by some players.	* Explore the impact of using remote gambling in the short-term as a tool to dissipate and replace negative states.	*Trial restrictions on number of bets per day *Trial restrictions on number of deposits per day.	Not applicable until further research is conducted.

The increased opportunity to engage in long sports betting sessions online via the provision of vast, obscure sports betting markets that are available 24hrs per day, means that problem gamblers can engage in sports betting within no enforced breaks in play. Langham et al (2016) argued that although continuous betting could be considered as a rational choice regarding discretionary expenditure, evidence suggests that repeated betting without intervals is indicative of automaticity and a lack of

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awareness of losing control. This proposition is supported by a recent study into public perceptions of harms related to sports betting, with the respondents stating that the multiple markets offered and the constant availability of opportunities to gamble in remote sports betting are the primary cause of harm (Thomas, Randle, Bestman, Pitt, Bowe, Cowlishaw & Daube, 2017). However, it is important to stress that both studies discussed above are primarily based on attitudinal data and existing literature, rather than primary behavioural research.

Furthermore, Langham et al argued that problem gamblers frequently report experiencing regret and negative emotional states in the periods after long, intensive gambling sessions, like the findings of the current study. Previous research clearly indicated that fast, continuous forms of gambling are problematic because they minimise opportunities for *response modulation* in the player (Corr & Thompson, 2014; Parke, Parke & Blaszczynski, 2016). This means that modern sports betting in remote settings can be engaged in without breaks-in-play, therefore reducing the likelihood of the player taking time to reflect on the value of their current behaviour and whether it is advantageous to continue or whether they should stop.

Furthermore, there is a large amount of existing literature that support the proposed relationship between long duration of gambling sessions and significant harmful consequences. On an individual level, Langham et al (2016) proposed that excessive time expenditure gambling can lead to physiological and psychological harms, including negative experiences of social isolation and the impact of long periods of sedentary behaviour. However, regular periods of excessive time expenditure on gambling was also acknowledged to lead to significant harms related to personal relationships, such as one's significant others and immediate family (Langham et al, 2016). Deterioration of personal relationships because of both mental disengagement and physical absence is believed to exacerbate individual levels of harm experienced by the problem gambler in terms of increasing levels of negative affect (Langham et al, 2016).

The preference of the problem gamblers observed in this study to repeatedly make a series of short odds, low volatility sports bets has mixed support from existing literature. Research shows that some problem gamblers prefer gambling activities that have frequent, smaller rewards because such games are more enjoyable and help maintain motivation and interest in contrast to long periods of losing (Coates & Blaszczynski, 2013; Dixon et al, 2006; Turner, 2008). However, conversely there is also research indicating that some problem gamblers are more motivated by gambling activities with higher volatility i.e. infrequent, large prizes (Leino et al, 2015; Zentall, 2016). With respect to the current grounded theory demonstrating remote problem gamblers placing large volumes of short odds sports bets, it is proposed that the substantial number of winning bets that accumulate based on this pattern motivates longer durations of betting. Not only is more money returned to the player to re-stake, but there is evidence to suggest that problem gamblers have high *reward sensitivity* (Brunborg et al, 2012). Reward sensitivity refers to the individuals finding greater value in winning, either because of winning money, or perhaps because of the pleasurable experience of winning in terms of mood modification (Brunborg et al, 2012). In simple terms, they may be motivated to gamble in this pattern to ensure a high rate of winning for experiential rewards despite incurring large total net losses.

7.1.1.1 Long Duration: Recommendations for Future Research
The current study indicates that the traditional conceptualisation of sports betting motivation, in which a player attempts to use their knowledge and evaluative skills to select winners and/or enhance their leisure experience of viewing sport by risking money on the outcome, may not be reflective of the motivation of current problem gamblers in remote settings. The pattern of placing large volumes of sports bets in a sequence, often at short odds, indicates that the motivation of this cohort may be

about maximising the frequency of winning within a short time frame. Ultimately, research should be conducted to better understand the primary motivations of remote sports betting for problem gamblers, to develop a better understanding of the disordered behaviour.

Secondly, it was clear that the problem gamblers within this study were experienced in betting on obscure, niche and semi-professional sporting events, for which the participants had limited knowledge on which to base selections. Research is required to determine whether betting on obscure sporting events, in relation to the player's profile, is related to problem gambling, with specific reference to a player's lack of control, motivations to continue or need to chase losses.

Finally, substantially more research is required into the motivation of problem gamblers to cash out bets during play, and more importantly, whether the pattern of use of the cash out facility is significantly different between problem and non-problem gamblers.

7.1.1.2 Long Duration: Recommendation for Trialling and Responsible Gambling

- Placing *obscure bets on niche sports* and engaging in *continuous sports betting* should be explored and considered as potential markers for problem gambling.
- Trialling of limit settings tools to allow customers to *restrict number of bets* that can be placed per day, and to *set sessional time limits* for sports betting, to help customers avoid persisting in sports betting because of negative emotional states and loss-chasing.
- Trialling of e*nforced breaks-in-play with remote sports betting*, as there appears to be a significant vulnerability of problem gamblers to engage in high intensity sports betting sessions with long duration.
- Trialling a responsible gambling tool that allows customers to *restrict types of sporting events* or *restrict types of sports bets* that they can play, to reduce the risk of customers making irrational and uninformed sports betting decisions out of frustration or loss-chasing.
- Consider trialling *restrictions on re-staking cashed-out funds* in the short term, or trialling options to provide *cash outs processed as withdrawals*, to limit the use of cash out to prolong gambling sessions.

7.1.2 High Bet Frequency Within-Session

Within this theoretical category, it was proposed that the rapid speed of gambling transactions available online, and the separation of sporting events into multiple shorter duration bets with more rapid feedback (e.g. tennis game vs tennis match betting) enables problem gamblers to engage in very high frequency betting patterns online. In this instance gambling transactions are the placement of bets, depositing funds and the act of cancelling and reversing monetary withdrawals. Existing literature supports this theoretical proposition, as it is evident that easy access to additional funds to continue gambling is a trigger for problem gambling (McMillen et al, 2006; White et al, 2006). Furthermore, there is evidence indicating that not being able to make multiple quick deposits reduces the probability of continuing of a gambling session (Parke et al, 2016). In addition, it is proposed that the *breaking down* and itemisation of sporting events into smaller bets (i.e., 'micro-events' available for betting 'in-play'), in contrast to the full match result, means that sports betting in remote settings can be engaged in a rapid and continuous format, simply by the vast array of short duration bets that can be placed at any time. Research clearly demonstrates that gambling activities that have high event frequency and rapid feedback are more predominantly associated with problem gambling (Dowling et al, 2005; Wood & Williams, 2004). Furthermore, high intensity live betting is widely recognised as a marker of problem gambling behaviour (Braverman et al, 2013; Laplante et al, 2014). Theoretically speaking, it is evident that gambling activities with contiguous reinforcement[12] such as EGM gambling, or in this case, online sports bets with a short duration, are experienced by problem gamblers as being more rewarding and harder to quit when playing (Linnet et al, 2010; Schultz, 2006).

Rapid, high frequency gambling sessions are harder to quit, not only because they are more arousing and engaging, but because a high turnover of bets makes it harder for the player to identify net losses in relation to the rapid feedback from betting outcomes (Delfabbro et al, 2005; Ladouceur & Sevigny, 2005). As discussed in Section 5.1.1, there is less scope for customers to evaluate their gambling behaviour and make adaptive decisions to stop during continuous forms of gambling, because there are no natural breaks in play to allow time for reflection. Ultimately, gambling sessions that have a high intensity in terms of rapid bet placement and feedback (outcomes) can lead to substantial losses in a relatively short time period. If players, are gambling continuously without evaluating betting outcomes and making rational spending decisions, the potential for emotionally reactive betting patterns, such as loss-chasing, is increased. As previously discussed, problem gamblers often have high reward sensitivity, however evidence also suggests that in addition problem gamblers may have high punishment sensitivity (Gaher et al, 2015). Although this may at first glance appear to be contradictory, it means that not only do problem gamblers over-react to wins, they also over-react to incurred losses and feel the need to quickly escape this unpleasant mood state. This drive to escape negative emotional states experienced when incurring substantial losses may explain persistent gambling patterns after periods of high intensity sports betting, as the player attempts to recoup losses via gambling further (Gaher et al, 2015).

The combination of high frequency, intense patterns of gambling in remote settings, with the capacity to incur substantial losses in a relatively short time period, may increase the probability of emotionally driven, irrational, persistent gambling. As a result, the ability to deposit further funds within a handful of seconds of losing one's account balance, and the ability to cancel a previously made monetary withdrawal, to fund further gambling may create vulnerability for overspending. Existing literature identifies that substantial monetary losses from emotionally driven, irrational gambling can lead to both: a) players experiencing negative mood states such as guilt and shame when the high arousal dissipates,

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[12] *This refers to reinforcement, or reward, that quickly follows the behaviour.*

and furthermore, b) players experiencing immediate negative consequences for personal relationships and individual health in terms of conflict and stress respectively (Langham et al, 2016).

7.1.2.1   High Bet Frequency Within-Session: Recommendations for Future Research

It is evident that patterns of high frequency gambling[13] is common in remote settings, and often this can lead to making impulsive actions to persist and continue gambling in the absence of fully informed decision-making. However, the specific mechanism of this process is not fully understood, and therefore requires further investigation. Research needs to identify how high intensity gambling reduces cognitive awareness of behaviour, and more importantly, what responsible gambling tools or structural and situational changes can be implemented in remote settings to minimise this phenomenon. Essentially, it is unclear whether high frequency sessions that result in net profit affect behavioural persistence and reduction in self-control differently than high frequency sessions that result in substantial net losses, and this requires further investigation.

7.1.2.2   High Bet Frequency Within-Session: Recommendation for Trialling and Responsible Gambling

- Trial responsible gambling tools that enable customers to set pre-determined *restrictions on the number of bets* that they can place within a given session, or per day, and *set sessional time limits*. It is anticipated that such responsible gambling tools may assist in customers retaining self-control when engaging in rapid, high frequency remote gambling sessions, where it is possible to incur substantial losses in a short space of time.
- Trial *enforced breaks-in-play with remote sports betting* are trialled, in terms of their effectiveness in reducing impulsive, irrational gambling behaviour by providing time for arousal dissipation and cognitive evaluation.
- Provide options to *set restrictions on number of deposits per day*, and to '*opt-out' of the capacity to reverse withdrawals*, to reduce the probability of engaging in emotionally driven, reactive loss-chasing.
- Provide options to *restrict live-betting participation* on their account, if they feel that they are more prone to impulsive gambling behaviour when they are engaging in live betting, in contrast to standard betting options.

7.1.3 Preoccupation

Within this theoretical category, it is proposed that the problem gambler can experience pre-occupation with remote gambling. Persistent mental and physical engagement with remote gambling may lead to gambling-related harm. Preoccupation[14] with gambling is one of the nine diagnositic criteria of gambling disorder (DSM-V, American Psychiatric Association, 2013). In a recent sample of over 8000 male and female collegiate athletes pre-occupation was identified as the strongest discriminant factor differentiating between social and problem gamblers (Temcheff, Paskus, Potenza & Derevensky, 2016). Within the current study preoccupation with remote gambling is proposed to emerge from two core behavioural processes that were observed. Firstly, problem gamblers were observed to engage in multiple remote gambling sessions throughout the day rather than restricting gambling to a dedicated time-period each day. It has previously been established that frequency of gambling sessions is a valid marker for problem gambling (LaPlante et al, 2014). The immediate availability of remote gambling via modern information technology means that problem gamblers can achieve immediate gratification, and this may challenge the self-control of problem gamblers,

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[13] It is important to note that high frequency betting sessions are not necessarily sessions that have a long duration.

[14] Diagnostic Criteria 4 for Gambling Disorder, "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)" (DSM-V, APA, 2013)

particularly when motivated to chase losses. This proposition is supported by Langham et al's (2016) argument that problem gamblers no longer perceive the home as being a sanctuary where their restraint towards gambling will not be challenged, because information technology providing ubiquitous access, and pervasive gambling advertising, often causes distress in problem gamblers struggling to control their behaviour.

Secondly, it was proposed that the opportunity to cash out sports bets before the event has ended may lead to further pre-occupation, and therefore harm, from remote gambling. For a player to make use of the cash out facility they will be required to actively monitor the sporting event they have bet on, to make determinations about whether to continue the bet or cash-out. When the cash-out facility is not available, and therefore less decision-making is required by the player, there is less cognitive demand on the player. Put simply, rather than placing a bet and passively observing the event, the opportunity to cash out requires more engagement from the player, and therefore extended participation.

The greater the time spent participating in gambling, and time spent mentally engaged with gambling related processes, the greater the potential for the player to experience harm. Langham et al (2016) proposed that time expenditure can lead to both first order and second order harm for the problem gambler. Preoccupation with remote gambling can lead to immediate harm, as time spent has an opportunity cost and this time may have been used more beneficially. In addition, the time spent gambling and thinking about gambling is likely to lead to physical absence and mental disengagement from important social relationships, which frequently leads to the deterioration of the relationship (Langham et al, 2016). Furthermore, Langham et al (2016) also proposed that problem gamblers face harm in relation to deterioration in occupational performance due to tiredness and distraction.

7.1.3.1 Preoccupation: Recommendations for Future Research
Further research is required to improve understanding of the phenomenon of preoccupation with remote gambling, specifically in terms of how preoccupation manifests over time in relation to harm. Currently there is little understanding about the nature of intermittent gambling sessions throughout the day, and to what extent problem gamblers can *switch off* from gambling in the interim periods between intermittent sessions. Furthermore, more research is required to improve understanding of the precise direct and indirect impacts that pre-occupation with remote gambling has on occupational and educational tasks, and on personal relationships.

7.1.3.2 Preoccupation: Recommendations for Trialling and Responsible Gambling
- Given the pervasive and intermittent patterns of remote gambling observed by the problem gamblers, there is rationale to propose trialling a facility for customers to *set a 'betting window'* where they can restrict the ability to engage in betting outside of pre-determined time periods. This responsible gambling tool can help customers establish self-control in response to urges to prolong gambling sessions to chase losses, and in response to gambling cues such as promotional offers and bonuses that are salient in the environment.

7.1.4 'Unsociable Hours' Betting
This theoretical category refers to the commonly observed pattern of continuing remote gambling sessions that were initiated in the evening, into the early hours of the following days. It is argued that gambling after midnight itself is not necessarily harmful, rather the data indicated that remote gambling in the early hours was often not a predetermined decision. The problem gamblers were so engrossed in the gambling activity because of the rapid, continuous nature of the activity, that they often lacked

awareness of the time. Arguably, the lack of enforced breaks in play in remote gambling appears to facilitate automaticity (i.e. persisting continuously in a reinforcing behaviour) in problem gamblers.

This concept of extending remote gambling sessions into the early hours because of activity engrossment and a lack of breaks in play is supported by the research literature (Parke et al, 2016). Furthermore, literature also demonstrates that high variability in gambling patterns is a marker for problem gambling (Addicott et al, 2015; Braverman et al, 2013; Nelson et al, 2008). Fundamentally, high variability of betting patterns, including unplanned and occasional late night/early morning sessions, is indicative of an inability to regulate one's behaviour in response to physiologically and psychologically engaging activities.

In the research literature, it proposed that extensive gambling sessions late at night extending into the early hours can lead to both short-term and long-term harms. Langham et al (2016) and Arla (2013, *as cited by* Binde, 2016) identified that such gambling patterns can lead to reduced cognitive performance through tiredness. More importantly, direct negative consequences from extensive gambling during unsociable hours such as sleep deprivation, can be a pathway to long-term poor health (Langham et al, 2016). For example, if repeated sleep deprivation leads to sustained poor performance in occupational settings it is probable that this could lead to being dismissed, which in turn can lead to many other second order harms for the individual and significant others (Langham et al, 2016).

7.1.4.1 'Unsociable Hours' Betting: Recommendations for Future Research
Further research is required to develop understanding of the transition from evening remote gambling into prolonged sessions that continue into the early morning. More specifically, whether the transition is related to rapid, continuous gambling patterns, and whether physical fatigue affects decision-making and evaluation in the early hours of the morning. In other words, it is important to investigate and identify the risk factors for a remote gambling session transforming into a more harmful, extended session.

7.1.4.2 'Unsociable Hours' Betting: Recommendations for Trialling and Responsible Gambling
- The appropriate responsible gambling tools to trial in response to this theoretical category relate to many of the other processes previously discussed. The provision of an opportunity for customers to *set a 'betting window'* would be suitable, as it may assist vulnerable customers who find it difficult to curtail remote gambling sessions in the evenings. If a customer can make a pre-determined choice to restrict their gambling to a specific period, there is less scope for the customer to experience harm because of becoming overly engrossed in the activity, and/or deficits in rational decision-making because of physical or mental fatigue.
- Furthermore, like previous sections, there is support to recommend customers s*et restrictions of number of deposits* and/or to *set restrictions on number of bets* permitted within a specific timeframe.

7.1.5 Chronic Use for Mood Modification
This theoretical category relates to the specific use of remote gambling to provide an instant mechanism to address and manage negative and uncomfortable mood states such as stress, boredom and loneliness. Problem gamblers used remote gambling as their 'go-to' method for managing negative moods and stressful experiences, because in contrast to more adaptive strategies such as exercise and socialising with friends and family, remote gambling provided a more immediate, more available and less effortful process to achieve their desired goals.

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It is true that there are inconsistent research findings across existing literature regarding the use of gambling to reduce or increase a specific mood state, this inconsistency may be a result of multiple methodological design limitations in terms of measuring the variable of 'mood' (Mishra et al, 2010). For example, recent research that did not rely upon retrospective participant data (i.e. memory) was able to clearly demonstrate that within sample desire and motivation to gamble were independently predicted by one's level of arousal or sadness (Quilty, Watson, Toneatto & Bagby, 2017). In addition, it is widely accepted that there is a strong association between gambling disorder and pre-existing mood disorders, such as bipolar (Kennedy et al, 2010; McIntyre et al, 2007). Furthermore, the effectiveness of gambling, as a tool, to radically change one's mood has also been consistently demonstrated within the research literature (Gee et al, 2005; Mishra et al, 2010).

Existing research demonstrates that rapid and continuous forms of gambling, such as remote gambling, are the most effective gambling activity to escape or modify emotional states (Parke et al, 2016). It is argued that rapid, continuous games are more engrossing and they leave minimal opportunity to *think* (Fang & Mowen, 2009; Turner, 2008). Essentially, gambling activities that are engaged in a rapid and continuous process are more immersive and effective in narrowing attention, providing effective distraction from one's mood state.

Basic learning and conditioning theory identifies that the more quickly and reliably a behaviour produces a desired outcome, in this case escape from unpleasant mood states, the greater the probability of the behaviour being repeated in similar contexts (Skinner, 1953). Although in the short term there may be benefits from escaping unpleasant experiences, it is probable that the avoidant response could become habituated and generalised to other stressful experiences (Corr & McNaughton, 2008; Wardell, Quilty, Hendershot & Bagby, 2015). In other words, avoidant coping might appear beneficial in the short-term but it does not address the underlying problem, and more importantly, the harms associated with frequent gambling, such as monetary loss, may exacerbate current problems. Research clearly indicates that gambling motivations relating to escaping uncomfortable mood states is a risk factor for problem gambling (Abarbanel, 2014; Stewart & Zack, 2008). The chronic use of remote gambling as an avoidant coping strategy may be particularly prevalent amongst emotionally vulnerable problem gamblers (Blaszcynski & Nower, 2002).

7.1.5.1 Chronic Use for Mood Modification: Recommendations for Future Research
Further exploration is required regarding the use of remote gambling as an instant tool for mood modification, particularly in terms of understanding the long-term consequences of the chronic use of instantly accessible gambling as an avoidant coping strategy. It is important to understand the value of the gratification experienced, and consider whether this gratification can be achieved as expediently via less maladaptive strategies (i.e. without the negative consequences associated with frequent gambling). Furthermore, to assist with identification of problem gambling, it is important to determine specific populations of gamblers that are more likely to use frequent remote gambling as an avoidant coping strategy.

7.1.5.2 Chronic Use for Mood Modification: Recommendations for Trialling and Responsible Gambling
- Chronic use of remote gambling to modify mood relates to frequent and impulsive (i.e. unplanned) initiation of remote gambling sessions. Therefore, similar responsible gambling tool trialling is proposed as for previously discussed behavioural processes involving frequent, impulsive gambling, namely, enabling *restrictions of number of deposits* and/or *number of bets* per day. By restricting the extent to which a customer can impulsively log in and gamble intermittently throughout the day, the customer is likely to seek other, potentially less harmful, coping strategies when they experience negative mood states.

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7.1.6 Live betting as a cause for concern and a research priority

Many of the evolving features from this study are directly linked to a specific type of sports betting known as 'live betting' (also referred to as 'in-play' or 'in-running' betting). As the terms suggest, such bets are made, in real time, during the betting event. Participation in live betting has been identified as a risk factor for developing gambling problems (Brosowski, Meyer & Hayer, 2012, Gainsbury, 2015; LaPlante, Nelson & Gray, 2014; Xuan & Shaffer, 2009). We believe that the findings in this study add to this growing body of literature, and provide additional context, and explanation, for the link between problem gambling and live betting. Based on the findings in this study, permitting in-play betting may increase risks among problem gamblers in the following ways:

- Bets can be placed continuously which may facilitate chasing, increase cost of play and impair decision-making;
- In-play betting (particularly the 'cash out' feature) may place additional attentional demands on individuals to the detriment of other life domains, and;
- Increased attentional demands have also been shown to reduce self-control (Muraven & Baumeister, 2000) which in turn may create problems trying to regulate behaviour when gambling.

We suggest that research into live betting is designated as a high priority for those seeking to minimize gambling-related harm. Live betting comprises a unique combination of structural characteristics, about which we currently have only a limited understanding. It uniquely combines some high-risk parameters of slot machines, such as potential for a continuous, rapid cycle of play, with betting options that generally require more cognition, and more choices. In other words, pressing a button on a slot machine is much simpler, and more expedient, than making bet selections (including in-play). Accordingly, it is not yet sufficiently clear what the implications might be for this new configuration of structural characteristics. One could speculate that the requirement to make betting decisions, and attend to unfolding betting events, could reduce the risk of dissociation during live betting. Conversely, a new set of risks, yet to be identified and understood, may be being posed. Research on these points will be important to improving the potential risks of live betting.

In the meantime, and in addition to those recommendations outlined above, we propose some further options to consider for trialling in response to the heightened risk associated with live betting. These include the options to:

- block live betting (over various periods);
- restrict the value and number of live bets and;
- enforced breaks between live bets during a sporting event.

We have summarized the key recommendations by incorporating these into the theoretical model (see Figure 16). As with all innovative approaches to harm reduction, it will be important to explore if any unintended negative consequences emerge as a result of any intervention.
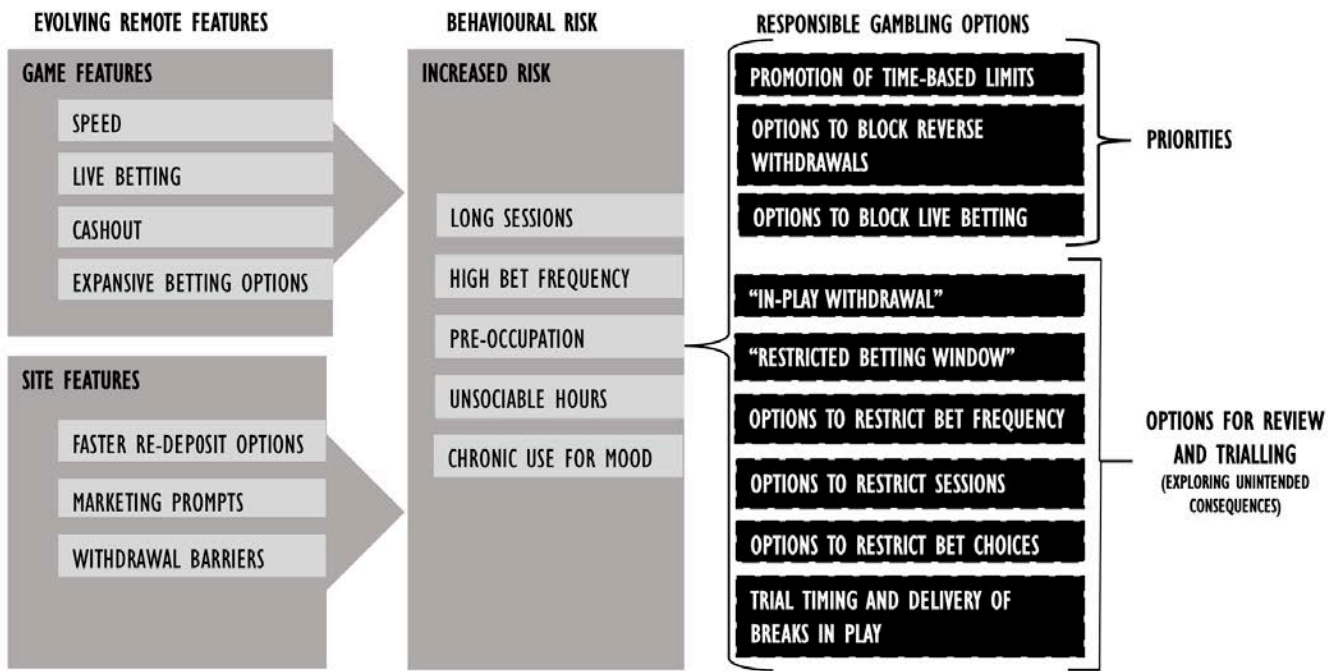
FIGURE 16. SUMMARY OF KEY RECOMMENDATIONS FOR 'EVOLVING REMOTE FEATURES'

7.2 'WINNING AND BEHAVIOURAL RISK': DISCUSSION AND RECOMMENDATIONS

Winning in gambling is generally viewed as a positive outcome. Winning is the explicit goal for most gamblers who do not experience problems. However, for problem gamblers at least, we propose that winning exacerbates risk of gambling-related harm in a variety of ways. We have proposed a model explaining in detail how winning can influence behavioural risk that may ultimately lead to gambling-related harm. The methodological approach was intended to generate ideas and not evidence and we encourage empirical research to build on the propositions from this study. That being said, we also believe sufficient insight has emerged that prompts action on some issues without necessarily needing further research (e.g., simplifying and expediting the account withdrawal process). Using the *Winning and Behavioural Risk* model as a basis, below we discuss implications for improving responsible gambling strategies and for guiding future research and trials.

7.2.1 Facilitating Withdrawals

This model provides rich description and comprehensive explanations regarding the challenges that a problem gambler may face when attempting to withdraw funds or discontinue a session. Accordingly, the most significant implication for responsible gambling from this model is that any attempt to dissuade player withdrawals should be prohibited and this principle should apply to all customers, not just problem gamblers. As a minimum requirement, choice architecture should be designed to promote simple and expedient withdrawals at least in equal proportion to the promotion of deposits. Various options to improve the facilitation of withdrawals include:

1. *Options to restrict reverse withdrawals.* As a minimum requirement, operators should provide a simple and accessible option to enable players to disable the reverse withdrawal facility. Further consideration is also needed on whether such facilities should be permitted at all, with the value of reverse withdrawal facilities to the customer being appropriately justified by operators.

2. *Review policy on deposit promotions following a withdrawal.* Any remote gambling operator nudging a player to re-deposit money recently withdrawn is unlikely to promote responsible gambling. The current findings suggest problem gamblers find it difficult to make withdrawals and when they do, they are often motivated by financial imperatives. Therefore, inducements intended to reverse the flow of funds back to the operator following a withdrawal, may be in violation of the principles of responsible gambling.

3. *Make withdrawals faster.* Critically review the necessity for account withdrawals to take 2-5 days and explore options to expedite this process.

4. *Make withdrawals easier.* Withdrawal facilities should be easily accessible on the website, visible in equal proportion to deposit facilities. For example, if a deposit link is visible on the home page then a withdrawal link should also be visable.

7.2.2 Win limits as a responsible gambling tool

A win limit is like a loss limit in that the session ends upon reaching a predetermined level of winnings (Walker et al., 2015). Walker and colleagues demonstrated using simulations of slot play that such an approach reduced average loss by about 30%. In a similar way, remote gamblers could have the option to set self-imposed win limits whereby there would be some form of session intervention if the target win amount was attained. The most obvious intervention would be a break-in-play which could also be set at various durations (e.g., day, week, month). Theoretically, a win limit could prove helpful in preventing re-escalation within sessions and possibly even prevent prospective risks if a sufficiently long break was imposed. Win limits might also be effective in reducing proximal risks in relation to time loss and pre-occupation. Adding win limits to the suite of responsible gambling tools is a promising prospect and should be considered a priority for trialling innovative approaches to player protection. However, caution should be exercised by ensuring that a trialling period includes exploring any

possible unintended consequences (e.g., inadvertently encouraging players to persist until they hit their win limit).

7.2.3   SPB as a period for customer interaction

Knowing how and when to interact with gamblers who may be suspected of having a gambling problem has been identified as a challenge for staff working in the gambling industry (Hing & Nuske, 2011). This research provides theoretical justification for exploring intervention options in relation to winning. Interventions following winning or during periods of self-protective behaviour, may hold promise for two reasons. First, players could be more amenable to staff interactions because of being in a more positive affective state (e.g., relief, reduced frustration). Second, in addition to helping to mitigate risk, terminating more sessions immediately following a win may have important implications for customer satisfaction and brand loyalty as a result of recency effects. Research has shown occurrences at the end of an experience are best remembered (Murdock, 1962) and have greater influence on subsequent consumption decisions (Garbinsky, Morewedge & Shiv, 2014). Recency effects of commercial gambling would be an interesting area for future research.

7.2.4   Understand and communicate 'game volatility'

In this model, we defined *winning* as a substantive and immediate improvement in financial position. If *winning* increases various categories of risk then this may have important implications for the role of game volatility as a risk factor in problem gambling. Increased game volatility can amplify the magnitude and duration of both winning and losing. Consequently, higher volatility can make periods of winning more 'substantive' (recall substantive in the definition of *winning*) and can intensify the impact of *successful chasing* because of the potential for heavier, sustained periods of losing, with the possibility of larger wins that may be perceived to justify chasing losses. Recall that one problem gambler suggested that the rare occasions on which he won very large 'isolated big wins' served to instill hope in subsequent gambling sessions such that past experience of successful chasing could sufficiently justify persistent play. This finding is consistent with previous research on the Partial Reinforcement Extinction Effect (PREE: Pettinger et al., 1988) which states gamblers with significant experience of both winning and losing will persist longer during losing periods. We suggest that the study of volatility as a structural risk factor for gambling should be a priority. There is also likely to be value in exploring messaging options to players regarding the volatility profile for different games in the same way as return-to-player (RTP).

7.2.5   Implications for education and treatment

Withdrawals among problem gamblers were rare relative to deposits. On occasions where a problem gambler decided to withdraw money, that decision was often reversed. Such situations are particularly concerning given that a consistent explanation among problem gamblers for making withdrawals related to some form of financial imperative (e.g., paying rent, bills etc.). There are two significant concerns here, one more obvious than the other. The more obvious concern relates to impaired self-control, causing problem gamblers to exceed available disposable income. The less obvious concern is how problem gamblers conceptualise 'essential expenditure'. Put another way, while the ability to meet financial imperatives may avert 'crisis harm' (as outlined by Langham et al., 2016), spending most available disposable income on gambling may lead to more 'general harms' such as reduced savings, no luxury purchases like holidays (Langham et al., 2016) and these may adversely affect well-being over time.

Money management skills already exist as components in many education and treatment programmes. However, education that specifically challenges heuristics that lead problem gamblers to spend all

disposable income on gambling might also be helpful. For some problem gamblers, vulnerabilities appear to relate less to loss of control, and more to maladaptive attitudes and beliefs. In other words, problems may not necessarily arise from failing to adhere to a budget, but more to willfully apportioning too much of their disposable income to gambling as opposed to savings, holidays, and a healthy, varied leisure profile.

Two other implications for education warrant mention, both of which relate to trying to reverse the impact of operant and classical conditioning from substantial winning periods. First, there is likely to be a critical need to challenge the belief that chasing losses can be an effective strategy to mitigate financial risk. As evidenced in the interview extracts, even when problem gamblers understand the folly of chasing losses, they admit to short-term justifications in some sessions driven by the hope that sometimes chasing does work. Justifying chasing in this way appears to be a key risk factor among problem gamblers. Second, in treatment situations where applicable, there may be value in working to disassociate specific games with winning. As demonstrated in this study, players can develop an attachment and unrealistic expectations of winning on specific games where they have previously experienced success. Again, challenging both heuristics may already feature in some education and treatment programs. We only seek to reinforce their importance by highlighting them here.
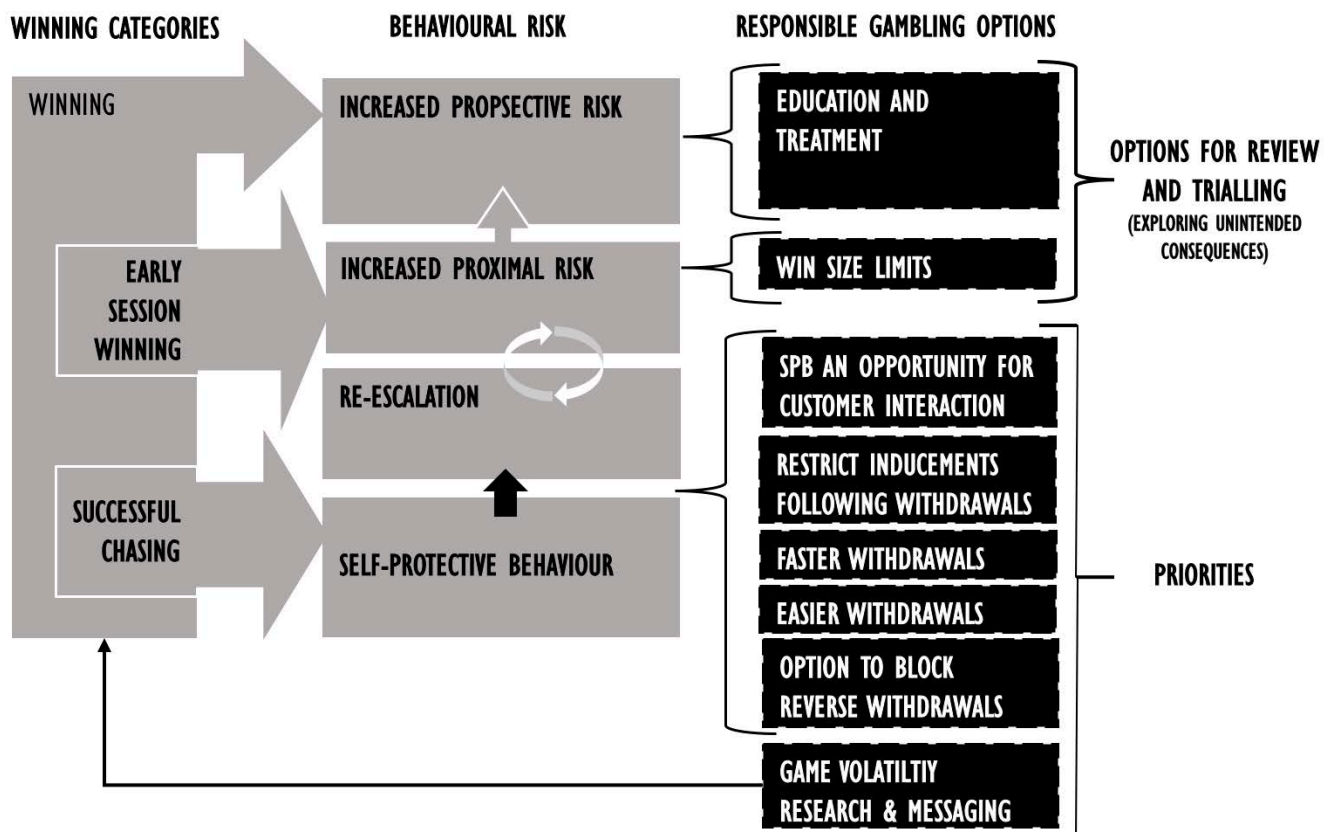
FIGURE 17. SUMMARY OF KEY RECOMMENDATIONS FOR 'WINNING AND BEHAVIOURAL RISK'

7.2.6   Other recommendations for research and trialling
Other options for trialling and further research include:
a) *Exploring the nature of prospective risk.* Given the limited timeline of data observed (i.e., 3 months) we cannot say much about endurance of prospective risk. Our initial impression is that this prospective risk dissipates over time in the absence of winning, but further research would be useful to explore this further.

b) *Contextualising winning as a risk factor.* Various determinants of gambling-related risk have been identified in gambling studies. This model does not propose that winning is the only or primary determinant of risk but only that it is one of many risk factors. Further research should begin to build a more realistic model accounting for how important determinants of risk interact in various gambling scenarios.

c) *Exploring theoretical concepts in relation to non-problem gamblers.* Only problem gamblers were examined in this study. An important extension of this work would be to explore how evolving features of remote gambling, and different categories of winning may affect behavioural risk among non-problem gambling groups.

We have summarized the key recommendations by incorporating these into the theoretical model (see Figure 17). As with all innovative approaches to harm reduction, it is important to also research whether unintended negative consequences emerge as a result of any intervention.

7.3   METHODOLOGICAL LIMITATIONS OF THE STUDY

Ultimately what is produced from a successful grounded theory study is a set of well-developed concepts, related through statements of relationship which together constitute an integrated framework that can be used to explain and predict behaviour (Strauss & Corbin, 1998). Grounded theory is useful in applied fields, such as problem gambling behaviour in remote settings, because it demonstrates how behaviours of interest operate within specific contextual conditions (Holt & Tamminen, 2010). The emphasis of this study was not to provide an exhaustive, representative account of all behaviour that occurs within remote gambling settings, but rather to identify clear behavioural processes that lead to patterns of problem gambling behaviour. As Pettigrew et al (2001) stated, the grounded theory produced in such studies face the double challenge of not only meeting high scholarly standards but also having substantial practical relevance for the field. More specifically, the primary value of the grounded theory is that it can be used to predict behaviour, and to inform practical applications and interventions based on the presented explanation of behaviour (Glaser & Strauss, 1967). It must be noted that grounded theory does not seek to verify or test hypotheses or provide evidence, rather the grounded theory must be evaluated as a vehicle for generating theory about inherently complex behaviours (such as *problem gambling in remote settings*), while providing a clear transparent process (Sutcliffe, 2016).

There are multiple limitations of all grounded theory studies; not least the role of the researcher in knowledge development and the potential for, if not expectation, of bias (Willig, 2008). The researchers have adopted a *critical realist* position in line with Strauss and Corbin (1998), which is an acknowledgement that it is not feasible to observe and record reality objectively. Essentially, researchers will always be forced to interpret and explain the observed reality through the *lens of human perception and thought* (Bryant, 2009; Strauss & Corbin, 1998). In other words, it is not possible for a researcher to eliminate previous knowledge and engage in bias-free pure interpretation. In fact, it is necessary for a researcher to use their knowledge to make sense of the observed behaviour, through contrasting findings with existing knowledge (Thornberg, 2012).

A necessity of grounded theory analysis is to engage in selective coding i.e. selecting core behavioural processes to focus on further at the expense of other concepts and behaviours observed within the data. The researcher makes this selection based on judgements regarding which behavioural processes are likely to have the most applied impact for the field (Bryant, 2009). Therefore, it is important to recognise that:

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- the behavioural processes and emergent theory presented within the report does not account for all behaviour observed within the study, but rather it represents the researchers' interpretation of the behavioural processes that have most applied value to the field, and that;
- it is possible that other researchers may have identified different behavioural processes and concepts as having applied implications for the field.

Beyond the potential for researcher bias, it is important also to recognise potential limitations regarding the sample used within this study. The site selected, *British based Unibet customers active between July and September 2015*, can reasonably considered to be representative of British remote gamblers. However, it must be acknowledged that because of the ethical need for informed consent before analysing player data, there will inevitably be potential skewness in any such self-selecting sample. Nevertheless, it is important to recognise that grounded theory does not claim to produce a representative account of all behaviour within the research population. Rather, grounded theory aims to generate a systematically developed, integrative set of propositions that explain the patterns of behaviour contained within the data (Dey, 1999). Therefore, the product of grounded theory is always presented tentatively and specific to the context in which they were systematically developed (Corbin & Strauss, 2008) rather than as an exhaustive, definitive theory that can be applied to the whole field.

7.4   CONCLUDING REMARKS

In terms of describing and understanding risks, two theoretical models are proposed from the present study. The *Evolving Remote Features* model of gambling risk proposes how structural developments such as the *cash out* and *live betting* features can facilitate increased risk among problem gamblers manifested through betting more continuously, longer, later, or more often. Among the usual harms associated with gambling, this model also highlights risks from pre-occupation with remote gambling through intermittent betting. For example, three bets spanning a 12-hour period that divert attention might pose risks even if log-in time and net expenditure are low. Importantly, remote gambling, unlike its terrestrial counterpart, allows greater flexibility in how games are presented to vulnerable individuals. For example, a potentially effective way to advance responsible gambling would be to offer options to disable specific gambling formats (e.g., live betting) or facilities (e.g., reverse withdrawals) that might impair control among problem gamblers.

In the second model *Winning and Behavioural Risk*, winning was proposed as a key determinant of gambling-related risk among problem gamblers. Much like oxygen is an essential ingredient to ignite a fire, winning was observed an essential ingredient to sustain problematic play. Winning was reported to have strong cognitive, emotional and even practical implications that could increase the risk of gambling-related harm. As Lesieur (p. 9, 1977) observed many years ago, the chase for the problem gambler is supported by experience: "*Games have their ups and downs; all you have to do is hang in there and the up situation will eventually surface*". The *Winning and Behavioural Risk* model is consistent with this theory. The model also suggests that risks are greater, the more recent the winning. Periods of *winning* or *self-protective behaviour* may represent important, and underutilised opportunities for staff intervention. Codes of practice for responsible gambling should require that gambling operators should not nudge vulnerable customers to redeposit (e.g., by offering a deposit bonus) immediately after an account withdrawal - especially following account behaviour indicative of problematic play.

This report is an extensive, systematic investigation of remote gambling behaviour of a cohort of problem gamblers; and we have proposed an explanatory account of how the various observed patterns of behaviour occur, and what implications they may have for future behaviour and harmful

consequences. As with all qualitative research it is important to remember that the behaviour and experience of this cohort of problem gamblers may not be reflective of the wider research population (i.e. all British-based online problem gamblers). Therefore, it is important to back up this qualitative investigation with further empirical support. As observed within the report, the behavioural patterns of the problem gamblers within this study are not simplistic, but rather demonstrate a complex interaction of structural characteristics, gambling outcomes and gambling behaviour. Currently available research literature has only begun to scratch the surface of these complex patterns, and substantial work is required before we are able to confidently explain problem gambling in remote gambling settings.

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9 APPENDIX 1. MULTIPLE LIVE BETTING OPTIONS

10 APPENDIX 2. WEB-BASED SURVEY

INTRODUCTION

Thanks for your interest in this study, which is being conducted by the University of Lincoln and Sophro, an independent research agency. We're exploring gaming and gambling behaviour and its role in people's lives. We need your help to answer some questions about this. Our survey will only take about 5 minutes to complete. Your answers are confidential and will not be shared with anyone outside the study team. Unibet have contacted you as you're a Unibet customer but, with your permission, data will be analysed by the independent research team. You can choose to answer as many questions as you like – all information is useful to us. If you have any further questions about the study please contact Dr Adrian Parke: aparke@lincoln.ac.uk We thank you in advance for your help.

GAMBLING PREFERENCES

The next few questions are about the different types of gaming you may have taken part in. We're keen to understand whether people who gamble online also gamble offline.

1. Have you spent money on any of the following activities in the last 12 months? Answer options [Yes/No]
   - Tickets for the National Lottery
   - Scratchcards (not online)
   - Other lotteries
   - Football pools
   - Bingo (not online)
   - Table games in a casino
   - Machines in a bookmaker's
   - Fruit or slot machines (not online)
   - Placed a bet with a bookmaker (not online)
   - Privately bet or gambled with family/friends

2. How many different online gambling accounts do you have?
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6 or more

3. When you bet online, how often do you use your Unibet account?
   - Almost always
   - Most of the time
   - Some of the time
   - Never

4. Which of the following best describes you?
   - I mainly gamble online
   - I gamble online but also gamble offline
   - I mainly gamble offline

- I rarely gamble at all

5. Online websites offer different types of gambling ranging from betting, casino games, slots and bingo. Thinking about the times when you gamble online, do you tend to stick to one type of gambling or do you switch between different types?
- Tend to stick to one type of gambling
- Switch between different types

6. Why do you switch between different types?
- For a bit of variety
- Because of curiosity
- To attempt to win money back on a different type of gaming
- Don't know just feel like it

PROBLEM GAMBLING SCREEN

For the next set of questions about gambling, please indicate the extent to which each one has applied to you in the past 12 months.

7. In the past 12 months, how often have you bet more than you could afford to lose?
- Almost always
- Most of the time
- Some of the time
- Never

8. In the past 12 months, how often have you needed to gamble with larger amounts of money to get the same excitement?
- Almost always
- Most of the time
- Some of the time
- Never

9. In the past 12 months, how often have you gone back to try to win back the money you'd lost?
- Almost always
- Most of the time
- Some of the time
- Never

10. In the past 12 months, how often have you borrowed money or sold anything to get money to gamble?
- Almost always
- Most of the time
- Some of the time
- Never

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11. In the past 12 months, how often have you felt that you might have a problem with gambling?
- Almost always
- Most of the time
- Some of the time
- Never

12. In the past 12 months, how often have you felt that gambling has caused you any health problems, including stress or anxiety?
- Almost always
- Most of the time
- Some of the time
- Never

13. In the past 12 months, how often have people criticised your betting, or told you that you have a gambling problem, whether or not you thought it is true?
- Almost always
- Most of the time
- Some of the time
- Never

14. In the past 12 months, how often have you felt your gambling has caused financial problems for you or your household?
- Almost always
- Most of the time
- Some of the time
- Never

15. In the past 12 months, how often have you felt guilty about the way you gamble or what happens when you gamble?
- Almost always
- Most of the time
- Some of the time
- Never

16. In the past 12 months, how often have you felt that you might have a problem with your online gambling?
- Almost always
- Most of the time
- Some of the time
- Never

17. In the past 12 months, have you risked or lost an important relationship, job, educational or work opportunity because of gambling?

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- Very often
- Fairly often
- Occasionally
- Never

DEMOGRAPHIC ITEMS

The next few questions are all about you...

18. What was your age last birthday? [open]

19. Are you male or female?
- Male
- Female

20. Are you ...
- single, that is, never married and never registered in a same sex civil partnership
- married
- separated, but still legally married
- divorced
- widowed
- in a registered same sex civil partnership
- separated, but still legally in a same sex civil partnership
- formerly in a same sex civil partnership which is now legally dissolved
- surviving partner from a same sex civil partnership

21. What is the highest level of education you have completed?
- GCSEs/O-Levels or equivalent
- A-levels or equivalent
- Trades certificate or diploma
- College diploma or university degree
- Master's degree, Doctorate, or Medical degree
- None of the above

22. What is your ethnic group?
- White/White British
- Mixed/multiple ethnic groups
- Asian/Asian British
- Black/Black British
- Chinese
- Arab
- Other

23. In the last 7 days were you mainly:

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- Working as an employee (or temporarily away)
- On a government sponsored training scheme
- Self-employed or freelance
- Doing other paid work
- Retired
- A student
- Looking after the home or family
- Long-term sick or disabled
- None of these

COMPLETION

Thanks for all the information you've given us so far. In order to make your survey responses even more useful, we'd like to link your survey answers to data from your online account. This is so that we can see how play varies for different types of people. If you agree, an anonymised version of the linked data will be provided to the independent research team to analyse. We will only use this for research purposes; your personal details will be kept completely confidential. All information will be treated in line with the Data Protection Act.

24. Are you happy for us to link your survey answers with your online account data?
- Yes
- No

25. The independent research team may want to speak to some people further about this study. If at some future date they wanted to talk to you further, may they contact you to see if you are willing to help?
- Yes
- No

This is the end of the survey. Thank you for taking time to take part in this study. All your answers will be treated in strict confidence. If you would like to speak to someone in confidence about your own or someone else's gambling here are some telephone numbers and websites you can try:

GamCare, provides counselling, advice and practical help in addressing the social impact of gambling in the UK, can be visited at: www.gamcare.org.uk. Its confidential helpline is: 0845 6000 133. NoneUK residents can contact GamCare for details of International support organisations.

Gambling Therapy provides support and counselling for anyone adversely affected by gambling. Members of the Gambling Therapy Team operates from locations both within the UK and internationally. Its site can be accessed at: www.gamblingtherapy.org/

You can also get useful information on Unibet's website:
http://www.unibet.com/info/responsiblegaming/whentostop

Alternatively, someone from Unibet could get in touch with you to talk more about responsible gambling.

26. Would you like Unibet to contact you for this purpose:

Yes
No

Many thanks for taking part.