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The Gambling Harms Severity Index (GHSI): Development of a Holistic Framework and Measurement Instruments for Gambling Related Harms and Recovery

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Executive Summary

This report presents the first empirically grounded, holistic framework for understanding gambling-related harms and recovery in Great Britain. It also introduces new measurement tools, representing the first GB-focused, co-developed instruments designed to directly capture the full range and severity of gambling-related harms, both for those who gamble *and* affected others. Drawing on lived experience, contemporary public-health thinking, and methods used across health economics and policy evaluation, the work moves beyond narrow diagnostic notions of "problem gambling" to capture how harms affect individuals, families and communities across wellbeing, relationships and resources. Despite growing recognition of gambling as a public-health issue, no previous programme has integrated harm, recovery, measurement and comparative impact within a single, coherent framework. The programme is structured around four linked goals, described across four chapters:

There were four over-arching, progressing goals:

1. **To develop the '*Holistic Framework of Gambling Related Harm and Recovery.*'** This framework classifies the diverse ways gambling can negatively affect individuals and communities in Great Britain (GB) – across health, relationships, and resource domains – alongside outlining the multifaceted processes that contribute to recovery from these harms.

2. **To develop the '*Gambling Harms Severity* Index' (GHSI-10, for people who gamble) and GHSI-AO-10 (for Affected Others).** These new measurement tools operationalise the Holistic Framework, capturing both the breadth and severity of gambling-related harms as experienced by both people who gamble and affected others. The tools are designed to support public health monitoring, service evaluation, and intervention research by providing a nuanced, non-stigmatising alternative to traditional diagnostic screening tools. By bridging psychometric rigour, co-production, and public health relevance, the GHSI-10 and GHSI-AO-10 represent a significant advance in the measurement of gambling-related harm.

3. **To understand how harm is linked to decrements in quality of life and capability**. The GHSI was used to evaluate how gambling-related harms affect health utility (a standardised measure of overall health and functioning), capability, and wellbeing. These analyses enable gambling harms to be benchmarked alongside other public health issues, and support cost-effectiveness assessments of prevention and treatment interventions. By importing health economic approaches into British gambling research for the first time, the work establishes the substantive wellbeing impacts linked to gambling harms.

4. **To deploy the Holistic Framework within a 'Multi-Criteria Decision Analysis' (MCDA) workshop, comparing gambling related harms against drugs and alcohol.** The MCDA approach – involving structured decision-making from a broad range of stakeholders – has been used previously to compare harms from different substance-related harms. Using our new framework, we use MCDA to establish that gambling harms are comparable to those from cocaine and alcohol.

Each of these goals is described in four chapters. In summary:

Chapter 1 summary: Development of the '*Holistic Framework of Gambling Related Harm and Recovery.*'

Background: Gambling-related harms are increasingly recognised as a widespread public health issue. The impacts on individuals are far broader than the 'first order' financial harms, and can impact wellbeing, relationships, and work, study and hobbies. It is also becoming increasingly recognised that harms do not just affect a small minority of 'problem' or 'pathological gamblers', but instead manifests across a gradient of harm, starting with more common "low level" harms. Such harms do not just affect those who gamble. Instead, these harms can also directly impact spouses, children, parents, families and close friends – termed affected others.

Tackling such problems requires broad based public health approaches. However, for this to be effective, it first requires a clear, evidence-informed framework that defines what constitutes gambling harm, identifies who is affected, and captures how these harms manifest across various life domains.

Over recent years, progress has been made towards such goals. Frameworks have been variously developed in Australia, Canada, the UK and Scandinavia. However, limitations remain. Such frameworks may lack the cultural specificity and empirical grounding in a GB context – where recent research has recognised that certain communities and contexts in Britain may experience harms in idiosyncratic ways, such as women, minority and LGBTQ+ communities. The experiences of affected others remain marginalised, where existing frameworks do not fully account for their perspectives. Moreover, there has been a paucity of research that tries to understand how recovery operates. Instead, especially in the academic gambling literature, this has historically been equated with cessation of gambling, overlooking the broader social, emotional, relational, and structural factors that enable individuals and families to rebuild their lives, restore wellbeing, and regain meaningful roles and connections.

Goal: to develop a holistic framework of harm and recovery: one that integrates lived experience including affected others, accounts for the communities and contexts of harms in the GB context, and places recovery at its centre.

Methods: Involved a two-stage process. First, a rapid review of harm and recovery frameworks – from both gambling and the adjacent sectors of alcohol and drugs. This identified key domains, conceptual gaps, and theoretical foundations to inform the development of a more inclusive, holistic model. Second, qualitative interviews were conducted with individuals – across a demographically diverse cohort, n=40 – who had experienced gambling harms directly, in addition to affected others. The aim was to explore how harms and recovery (i.e. in a broad sense, beyond simply abstinence) were experienced and understood via lived experience, and to ensure the framework reflected the language, priorities, and lived realities of diverse groups across Great Britain. Interviews were semi-structured, using topic guides informed by the literature review, and analysed thematically to identify patterns, nuances, and under-represented domains not captured by existing models.

Results: We integrated the literature findings alongside the nuanced perspective of in-depth qualitative findings to produce our holistic framework of harm and recovery. It comprises three interrelated components of harm, each with sub-components. See Figure 1.

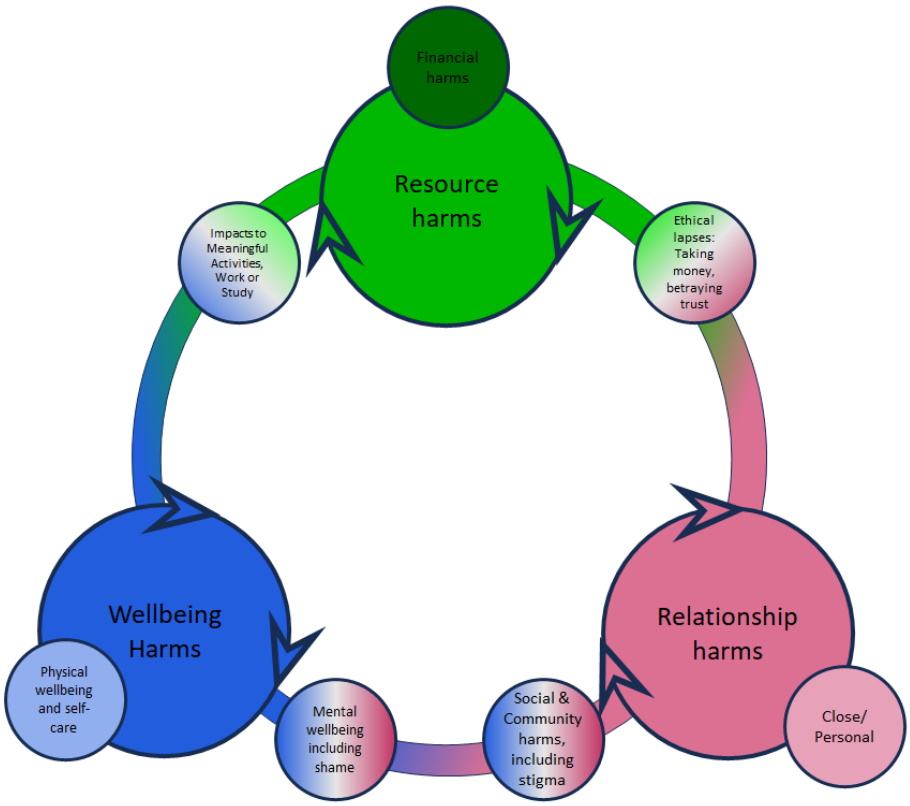

Figure 1. *Graphical representation of the Holistic Framework of Gambling Related Harm. The position of some harms indicates the intersecting nature of harms, with the arrows and connecting lines indicating the complex interactions, where multiple shades (e.g. blue **and** green for impacts on meaningful activities) indicate that harms may span across multiple components, are fluid over time, and may have crisis, legacy and intergenerational impacts.*

Resource harms. Encompasses **financial** strain, alongside impacts on **work, study or hobbies**. It also includes **ethical violations** such as deception, or misuse/misappropriation of shared resources. Where previous frameworks might have explicitly used the phrase 'crime', our framework instead broadens this concept into 'ethical lapses' to capture morally charged, trust-eroding behaviours that may fall outside legal definitions of crime but carry significant interpersonal consequences. In our qualitative interviews, resource harms, especially financial harms such as debt, were often the 'first order' harms, which cascaded into wider relational and psychological impacts.

Wellbeing harms. Wellbeing harms encompass both **mental** and **physical wellbeing.** Issues include anxiety, depression, and a sense of shame. Our qualitative findings also highlighted a broader, "lived" sense of wellbeing harm that included disrupted sleep, deteriorating self-care, loss of identity, and diminished meaning or purpose. In recognition of this, the domain was reframed from "Health" to "Wellbeing" to more accurately reflect the holistic, bidirectional, and culturally sensitive nature of these experiences.

Relationship harms. Relationship harms encompass the wide-ranging interpersonal consequences of gambling, including breakdowns in trust, emotional withdrawal, family conflict, abuse, and social isolation. This affects not only **close and personal relationships** but also extended into **social and community networks**. Close relationships, secrecy, betrayal and loss of trust were often described as more damaging than monetary loss. With broader social networks, cultural context shaped how harms

were experienced, particularly in communities where gambling is taboo, compounding stigma, exclusion and reducing access to formal and informal support. To reflect the complexity and interconnectedness of relational ecosystems, the framework combined 'social' and community'.

These domains are interconnected and mutually reinforcing: harms in one area often contribute to, compound, or are exacerbated by harms in others – highlighting the cyclical and accumulative nature of gambling-related harm and the need for holistic responses, as shown in Figure 1. For example, financial strain could erode mental wellbeing, which in turn damaged relationships, often culminating in crises such as debt, housing loss, or family breakdown.

Stigma and shame were central to these dynamics: both as consequences and drivers of harm. Stigma operated not only internally (termed 'shame', although 'self-stigma' would be equally apt), but also externally, often shaped by cultural and faith-based contexts. Affected others, too, experienced 'associative' stigma, compounding relational strain.

Harms frequently intersected with wider life challenges: such as trauma, substance use, or pre-existing relationship problems, with gambling often functioning as a maladaptive coping mechanism. Harm is often driven and shaped by structural and cultural factors such as ethnicity, faith, sexuality, gender, and social environment.

Harms to affected others: Gambling harms radiate beyond the person who gambles, impacting affected others such as partners, children, parents, and close friends. These harms can be financial (e.g. shared debt or housing instability), emotional (e.g. stress, anger, anxiety, betrayal), relational (e.g. breakdown of trust, financial and domestic abuse), and social (e.g. associate stigma and subsequent isolation, strained caregiving roles). Importantly, AOs often feel unserved by standard help-seeking pathways. Our framework recognises affected others as central stakeholders whose needs, insights and recovery journeys must be integrated into future prevention and intervention efforts.

Recovery and Resilience: Our framing of recovery draws on the concept of ***recovery capital*** – originally developed in the substance harms field and subsequently extended into mental health – which refers to the internal and external resources individuals can draw upon to initiate and sustain recovery and long-term resilience. These include personal capabilities, supportive relationships, social connections, alongside finding meaning through work and other roles, all of which contribute to the likelihood and sustainability of positive change. In this way, our recovery framework mirrors the harms framework – but framed around notions of personal capital, and the strengths that an individual can draw on to sustain recovery and resilience. It also includes a core, conceptual domain at its centre, which encapsulates the cognitive and structural changes that facilitate recovery, such as gaining insight into gambling behaviours, and instigating control and behaviour change to reduce harms. See Figure 2.

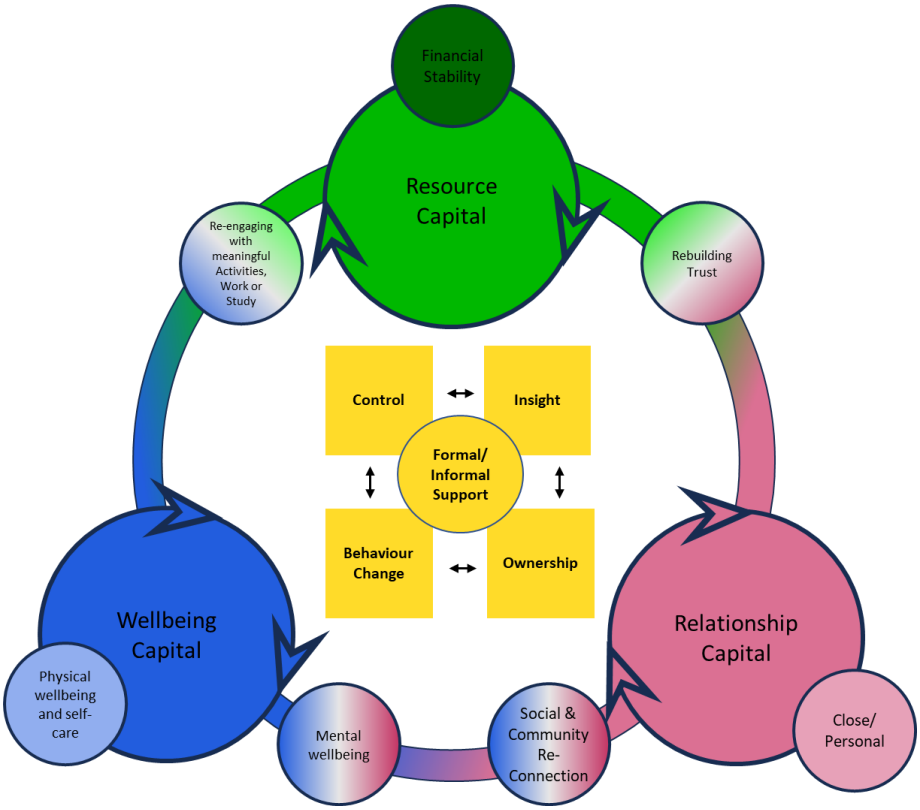

Figure 2. *Graphical representation of the Holistic Framework of Gambling Recovery. The framework is focused on the positive steps made to establish recovery and long-term resilience, where the central (yellow) 'mechanisms' domain encapsulates the cognitive and structural changes necessary for recovery.*

Resources capital: Recovery in the resource domain was associated with regaining **financial stability**, typically through stopping or reducing gambling and establishing strategies to address debt. Reconnecting with **meaningful activities such as work, study, or hobbies** provided purpose and distraction, which contributed to enhanced wellbeing and reduced gambling urges.

Wellbeing capital: Improvements in **mental wellbeing** were linked to improved **physical wellbeing and self-care**, though many participants noted that mental health challenges often persisted for long periods. Affected others noted that their own wellbeing was tightly connected to the behaviour and circumstances of the person who gambled.

Relationship capital: Rebuilding trust and openness was critical in restoring damaged **close/personal relationships**. People who gambled were expected to acknowledge and disclose their gambling behaviours as a foundation for repair. However, trust remained fragile, with openness also serving as a monitoring function for affected others. In some cases, maintaining distance (or complete estrangement) from the person who gambled was felt necessary for affected others to protect their own wellbeing.

Mechanisms: managing or mitigating harms from gambling. Participants described five cognitive and mechanistic components of recovery – **control, insight, behaviour change, ownership** and **support** – as deeply interconnected. Affected others played roles across these areas. ***Control*** involved managing environments, routines, and triggers through strategies such as engaging in alternative activities, avoiding high-risk settings (i.e. people, places associated with gambling), and structured

planning (i.e. to deal with potential triggers). ***Insight*** came from realisations prompted by life events, personal reflection, or feedback from others, helping participants understand the harms and their underlying causes. ***Behaviour change*** was the observable implementation of control, often supported by treatment, changes in social networks, or shifts in identity. ***Ownership*** emerged through these processes, encompassing personal accountability and a sense of reconnection with oneself. Finally, ***Support*** was widely perceived as a further component integral to recovery. Participants described both formal and informal support – ranging from counselling, peer groups, and recovery services to encouragement and accountability provided by friends and family – as essential to initiating and sustaining recovery.

Summary: The Holistic Framework of Harm and Recovery. The co-produced framework provides a shared language for **understanding the full spectrum of gambling-related harm and recovery**. It brings together diverse experiences and domains into a coherent, usable structure that reflects the real-world complexity of harm across individuals and affected others.

Crucially, this framework is not an endpoint but a foundation, offering the conceptual scaffolding upon which new self-report measurement tools can be built – ones that are valid, meaningful, relevant and rooted in the lived experiences of those experiencing gambling-related harms. By integrating harm and recovery within a single, coherent structure, it supports new ways of thinking about gambling-related impact that move beyond diagnosis or risk alone, and is intended to inform the development and sustained use of harm- and recovery-focused tools across research, policy, commissioning and service design.

Chapter 2 summary: Development and Validation of the Gambling Harms Severity Index (GHSI-10) and the GHSI for Affected Others (GHSI-AO-10).

A copy of the GHSI-10 and GHSI-AO-10 are provided in the Appendix, at the end of this document. Other versions are available at gamblingharms.org

Background: Our holistic framework recognises the complex, multifaceted impacts of gambling harm – which extend beyond those who gamble and also impact affected others. However, until recently, most research and monitoring tools focused narrowly on identifying those who are termed “problem gamblers,” reflecting a diagnostic, individualised model of harm. Instruments like the Problem Gambling Severity Index (PGSI) were developed within this paradigm and lack alignment with contemporary public health strategies. They also omit input from people with lived experience of gambling harm and do not capture the broader social and systemic dimensions of harm. There is now widespread consensus that such tools are outdated and may unintentionally reinforce stigma by overemphasising individual responsibility. As thinking shifts towards a socioecological framing of gambling harm, new tools are needed – ones that are grounded in lived experience, theoretically informed, use modern, updated standards for the development of measurement instruments, and are aligned with public health objectives.

Goal: To develop new instruments that are comprehensive and grounded in lived experience, and which operationalise our holistic framework of harm, where each question reflects a specific harm component, and the index as a whole provides a nuanced profile of an individual’s experience. This represents two instruments:

GHSI-10: The Gambling Harms Severity Index, for people who gamble

GHSI-AO-10: The GHSI for Affected Others

Methods: The GHSI-10 and GHSI-AO-10 were developed using a co-designed, person-centred process, involving five iterative workshops with people who gamble, affected others, and service providers. Participants helped shape, refine, and validate items to ensure clarity, relevance, and sensitivity. The final tools were tested in a large, GB-based sample (N = 4,519; including 2,154 affected others).

Validation combined modern psychometric techniques, including both Classical Test Theory (CTT) and Rasch Measurement Theory (RMT); where lay-friendly descriptions of these techniques can be found in Chapter 2 Analyses assessed internal consistency, unidimensionality, and convergent validity, comparing scores to gambling-related variables (spend, number of products) and scores on established instruments such as the PGSI, the Short Gambling Harms Screen (SGHS-10), and well-used measures of capability (ICECAP-A), Wellbeing (WEMBS, PWI) and health utility (SF-6D).

Results:

GHSI-10. Psychometrically, all ten questions worked together to show a strong one-factor structure, confirming that it captures a single concept of gambling-related harm. The scale showed excellent internal consistency, meaning the questions were highly consistent with each other.

Convergent validity: Scores on the GHSI-10 closely matched other indicators of gambling severity and wellbeing in the expected directions. People with higher harm scores had:

- Higher scores on the PGSI
- Lower wellbeing and quality-of-life scores.
- Higher gambling spend and product use.

Rasch analysis: When tested using RMT, the GHSI-10 met all the expected standards for a well-functioning measurement tool (see pre-print for a more detailed overview https://osf.io/w8fb6_v1). The questions performed in an orderly way, meaning that higher responses genuinely represented greater harm. All ten items fitted well within the expected range. The model confirmed that the GHSI-10 measures one coherent dimension of harm.

Items were spread across a sensible range of severity, ranging from milder harms (e.g., feelings of secrecy or strain on wellbeing) to more severe consequences (e.g., serious financial or relationship harms). Furthermore, the tool works similarly across different groups.

GHSI-AO-10 (for affected others): The GHSI-AO-10, which measures harm experienced by people affected by someone else's gambling, also showed a strong one-factor structure – confirming that it captures a single concept of "gambling harm to others". Importantly, the harm captured by the GHSI-AO-10 is not derivative of the harm experienced by the person who gambles but harm specific to the affected other, making the measure conceptually distinct. Again, internal consistency was excellent. All items contributed to the scale without redundancy.

Convergent validity: Higher scores on the GHSI-AO-10 were strongly associated with:

- Greater harm scores on affected others metrics.
- Lower wellbeing.

- Relationship difficulties linked to whether the person who gambles was still actively gambling.

This pattern confirms that the scale behaves as expected.

Rasch analysis: RMT also supported the robustness of the GHSI-AO-10. Items progressed in a logical order from lower to higher harms. All items fitted within acceptable limits, and the overall structure was unidimensional. Furthermore, the tool works similarly across different groups.

Results summary: Both versions of the GHSI showed strong psychometric performance. They reliably measure a single, coherent construct of gambling-related harm, which has consistent psychometric properties across demographic groups, and align well with existing measures of gambling severity and wellbeing. In short, they provide robust, population-ready tools for assessing harm among both people who gamble and those affected by someone else's gambling.

Unlike older tools such as the PGSI, which measure *risk* or *symptoms* of problem gambling, the GHSI directly measures *actual harm*. This distinction matters because risk, diagnosis, and harm are not interchangeable: individuals may experience substantial harms without meeting diagnostic thresholds, while risk indicators may be elevated long before any tangible harms occur.

The co-design process ensured that language was clear, non-stigmatising, with content that was relevant to lived experience, encouraging honest responses and bypassing biases associated with denial and social desirability. The measures capture the full spectrum of harms – financial, relational, health, and social – and are aligned with NICE, NHS, and WHO definitions of health and wellbeing.

Together, the GHSI-10 and GHSI-AO-10 represent a major advance in the measurement of gambling harms in Great Britain. They provide robust, non-stigmatising, and practical tools for monitoring harm, supporting treatment pathways, and evaluating recovery over time. Finally, by including health economic tools within our development strategy, we were able to benchmark changes in the GHSI instruments to changes in health utility and capability – the aim of Chapter 3.

Chapter 3 summary: Gambling harms and decrements to quality of life and capability

Background: Gambling harms are increasingly recognised as a major public-health issue. If such harms are to be assessed alongside other major health conditions, the field must adopt the same analytical tools routinely used in public health and health economics. These tools quantify how far a condition pushes individuals below "full health" by measuring reductions in health-related quality of life (HRQoL) and capability.

In line with this, our survey (i.e. in Chapter 2) incorporated a well-established HRQoL instrument (the SF-6D), alongside a broader measure of capability (ICECAP-A). These are the same kinds of metrics used in NICE cost-effectiveness evaluations, WHO burden-of-disease models, and NHS decision-making frameworks for long-term conditions, mental disorders, alcohol use and opioid dependence. By benchmarking harms to utility values – which run on a scale from 0 to 1, where 0 is equivalent to death, and 1 is perfect health – conditions as different as depression, chronic illness or substance-related harms can be compared on a common scale.

Internationally, health-economic studies – mainly from Australia and New Zealand – have shown that severe gambling problems are associated with marked reductions in quality of life, often comparable to substance-related harms and mental health conditions. Several approaches have been used, but the currently recommended (and more conservative) approach is "indirect elicitation": this uses large surveys and statistical modelling to isolate the specific impact of gambling harm on HRQoL while accounting for co-occurring factors such as alcohol use, drug use, and mental-health conditions. Until now, however, no such primary research has been conducted in Great Britain.

Goal: By analysing our large survey of people who gamble and affected others, this allowed us to model the impacts of increasing PGSI, GHSI-10 and GHSI-AO-10 scores on health utility, captured through HRQoL (SF-6D) and capability (ICECAP-A). Together, these analyses provide the first GB-based estimates of the health-utility and capability loss associated with gambling harm, enabling comparison with other major public-health conditions.

Methods: We used the indirect elicitation method to estimate how gambling harms reduce health-related quality of life and capability. To isolate the specific impact of gambling harm, we used propensity-weighted statistical models. This technique adjusts for background differences between harmed and unharmed participants, creating fair comparisons similar to those achieved in a randomised study. After weighting, regression models controlled for various known risk factors for harm, such as occupation, alcohol consumption, and mental health issues, allowing estimations of how much HRQoL and capability declined with increasing harm. Models were run both linearly (using continuous PGSI/GHSI-10/ GHSI-AO-10 scores) and categorically, using harm/risk of harm-severity categories (unharmed; low 1–2; moderate 3–7; high 8–14; severe harm 15+); categories which were established in Chapter 2.

We conducted various models that benchmarked scores on the PGSI, GHSI-10 and GHSI-AO-10 to decrements in SF-6D and ICECAP-A outcomes, producing a comprehensive set of estimates of the health-utility losses associated with gambling harm.

Results:

This chapter presents the first GB application of indirect elicitation methods to estimate the impact of gambling harms. The findings confirm that gambling harms are associated with significant and clinically meaningful reductions in both health utility and capability.

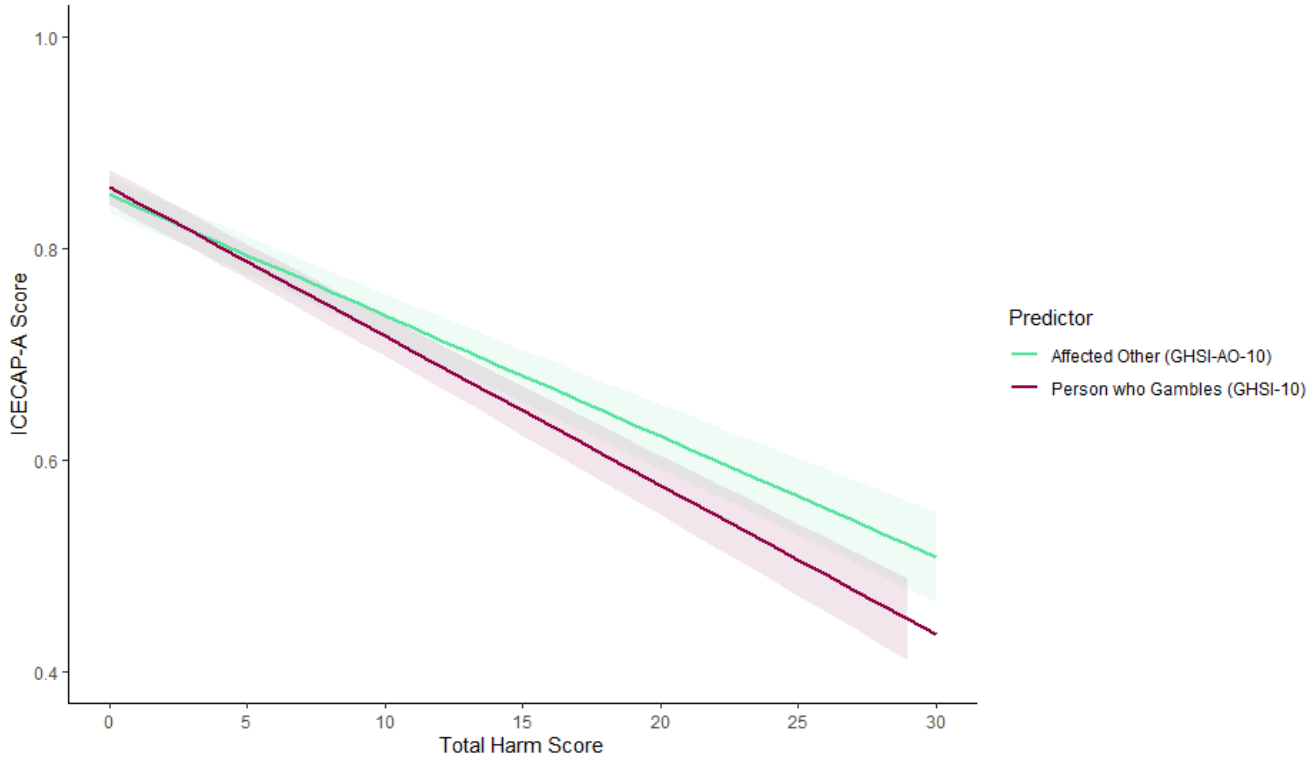

Figure 3. *Linear relationship of ICECAP-A capability scores versus scores on GHSI-10 (red) and GHSI-AO-10 (green), revealing that as harm scores increase, capability decreases substantively, for both groups of people.*

Across all models, increasing severity of harm (as measured by GHSI-10 for people who gamble and GHSI-AO-10 for affected others) was associated with progressive declines in both wellbeing and capability (Figure 3). Each one-point increase in GHSI-10 (a scale from 1 to 30) was linked with around a 1.5% reduction in quality of life. For affected others, decrements were similar in scale. In health economic terms, the decrements observed are substantive and meaningful. With the SF-6D, the 'minimally clinically important difference' (MCID) is around 0.03-0.05 – this is deemed the range that is typically needed for patients or clinicians to perceive a notable decline (or improvement) in health-related quality of life. Thus, moving between harm statuses (e.g. from high to moderate, for example) is clinically meaningful.

Severe gambling harm (GHSI-10 score 15+) was associated with reductions of around 32% on the SF-6D and 35% on the ICECAP-A; levels equivalent to or exceeding those seen in major health conditions such as depression and opiate dependence (Figure 4). Importantly, affected others, especially partners, experienced decrements essentially on par with the individuals who gamble, highlighting the relational diffusion of harm.

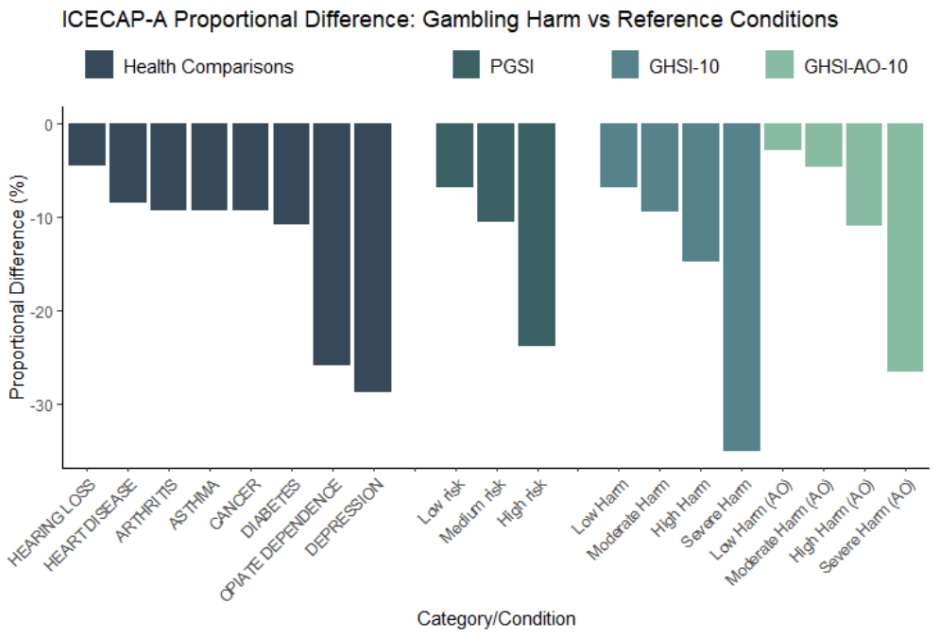

Figure 4: *Decrements in capability (from ICECAP-A) are shown as a proportional percentage difference (i.e. percentage decrement when compared to healthy people, enabling comparison between studies that have different baseline data for healthy people). On the left (dark green), comparison data is drawn from previous studies with ICECAP for health conditions and opiate dependence. This is followed by results of our categorical models according to low harm (score 1-2), moderate (2-7), high (8-14) and severe (15+).*

The GHSI-10 consistently outperformed the PGSI in explaining variance in health and capability outcomes while identifying fewer individuals as harmed – demonstrating that it better captures the impact of gambling without over-pathologising.

At the population level, extrapolations using national prevalence data show that while severe harms have the largest individual impact, most of the total burden (in years lost to health or capability) is attributable to low- and moderate-risk individuals (as defined by the PGSI) who gamble, due to their higher prevalence. This pattern reflects a classic “prevention paradox” – whereby most population-level harm arises from the large number of people experiencing low-to-moderate harm, rather than the smaller number experiencing severe harm – reinforcing the need for whole-population approaches; not just targeting those most harmed.

Taken together, the results provide robust, policy-relevant estimates of gambling’s health burden in Great Britain, offering a defensible basis for inclusion in cost-effectiveness analyses and burden-of-disease models. Crucially, they highlight that gambling harms are not only wide-reaching, but comparable in magnitude to other substance related harms and mental health issues – and that their ripple effects extend beyond the individual.

Chapter 4 summary: Comparing gambling-related harms against drugs and alcohol: A Multi-Criteria Decision Analysis using the Holistic Framework.

Background: Gambling, alcohol and illicit drugs sit in different regulatory silos, yet each generates harms that cut across wellbeing, relationships, and resources. In Great Britain, gambling has historically been governed through lighter-touch, commercially oriented rules, but the 2023 *High Stakes* white paper signals a shift toward a more public-health-oriented model (e.g., mandatory levy, financial-risk checks, stronger consumer protections).

While new surveillance data (e.g., GSGB) improves our picture of who is affected and how often, prevalence alone cannot tell us how gambling harms compare in magnitude and composition with those from alcohol or drugs.

To answer that, we apply Multi-Criteria Decision Analysis (MCDA) – a transparent method that integrates diverse expertise to weigh and aggregate multiple harm domains on a common scale. MCDA has previously been used in drug and alcohol research, sometimes controversially, because it made direct comparisons possible, showing that alcohol's overall harm can exceed many illegal drugs.

Here, we prototype the same approach for gambling, using our Holistic Framework of Harm to ensure like-for-like comparison across domains and for both people who gamble and affected others. The objective is pragmatic: to establish the relative scale and structure of gambling harm and to provide decision-makers with a defensible basis for proportionate regulation, service planning, and prevention.

Goal: The goal was to import the MCDA approach within gambling research for the first time. Using our Holistic Framework of Gambling Harm, the study aimed to compare the scale and composition of harms from gambling with those arising from alcohol and illegal drugs. By combining expert judgement from different perspectives, the analysis sought to determine where gambling sits within the wider spectrum of substance-based harms and identify which domains contribute most to overall harm.

Methods: MCDA was conducted using the Holistic Framework as the core structure for comparison. An expert panel of eight participants was convened, representing a broad range of perspectives and knowledge or experience of gambling harms. The panel included researchers, people with lived experience, affected others, treatment providers, and policy specialists. All panellists were knowledgeable of gambling harms and at least one other harmful substance evaluated. The panel met over two days, facilitated by an independent MCDA specialist, using structured discussion and consensus methods to reduce bias.

Participants compared and ranked the harms from the following:

- Low risk gambling (PGSI 1-2)
- Medium risk gambling (PGSI 3-7)
- High risk gambling (PGSI 8+)
- High risk cannabis use (DSM V criteria)
- High risk cocaine use (DSM V criteria)
- High risk alcohol use (DSM V criteria)

Each was assessed across 14 harm criteria, derived from the three core components of the Holistic Framework – wellbeing, relationships, and resources – and measured separately for harm to self and harm to others.

Scores (0–100) reflected the perceived magnitude of harm within each criterion, while "swing weighting" (the process of weighting the relative importance of a move from worst to best) was used to determine the relative importance of each harm type, ensuring that broader social and relational harms could be fairly compared with physical health harms. The resulting model was stress-tested through sensitivity analyses to check its robustness to alternative weighting assumptions.

All analyses were conducted in HiView software, producing a final ranked model of gambling and substance-related harms, validated by the panel for coherence and interpretability.

Results: The MCDA produced a clear and internally consistent model of harm across gambling, alcohol, and illicit drugs. High-risk gambling and high-risk alcohol use (informed by DSM V criteria, see above) were consistently rated as the most harmful overall, followed closely by high-risk cocaine use (again, DSM V criteria). Medium-risk gambling and high-risk cannabis use occupied the middle range, while low-risk gambling – used as an anchor category – had the lowest relative harm. Importantly, "low harm" did not mean harmless, but rather the least harmful within this comparative framework. See Figure 5 for the results of the overall MCDA model of harm.

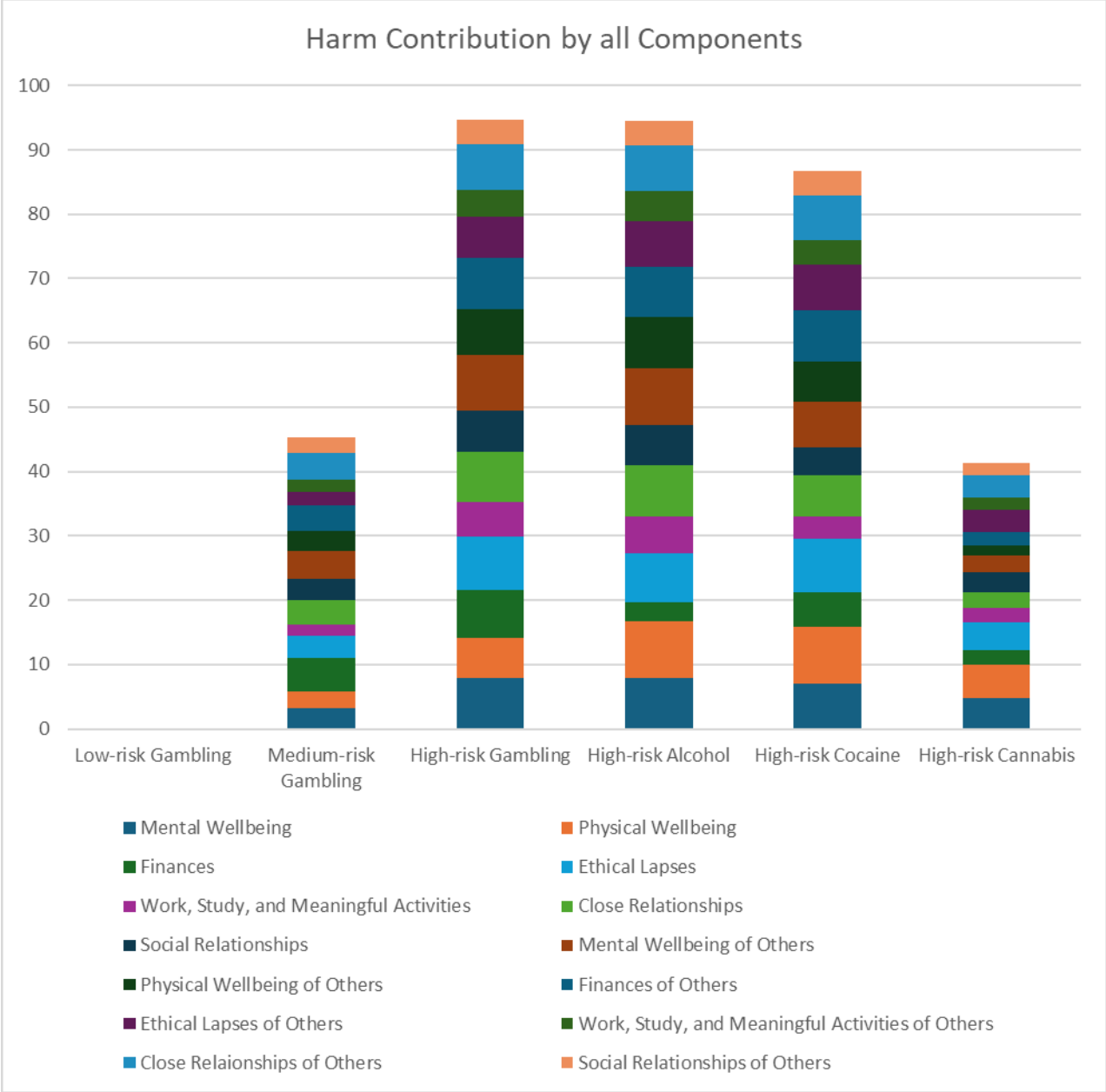

Figure 5: *total harm scores for different behaviours, divided across all assessed harm criteria.*

When harms were broken down by component, relationship harms were found to be comparable for high-risk gambling and alcohol, while resource harms (particularly financial impacts) were greater for gambling.

Conversely, wellbeing harms, especially physical health effects, were more pronounced for alcohol. Mental wellbeing harms were notably high for gambling, affecting both individuals and affected others.

When viewed through a purely physical-health lens, substances such as alcohol and cocaine ranked as most harmful. However, when harms were weighted and assessed holistically – across wellbeing, resources, and relationships, and across both self and others – high-risk gambling (scored 94.7 in total) equalled alcohol (94.6) and exceeded cocaine (86.8) in overall impact. This finding reinforces the importance of using multidimensional, public-health perspectives rather than physiology alone to assess harm.

Overall, the MCDA findings triangulate with results from earlier chapters: harms captured through the Holistic Framework and GHSI instruments align with health-utility decrements that also place high-risk gambling on par with behaviours such as high-risk alcohol use. The analysis provides empirical evidence that gambling harms are of comparable scale and seriousness to those from major substance harms, particularly when considering their broader social and relational dimensions.

In policy terms, these findings strengthen the case for treating gambling within a public-health framework, prioritising action on mental wellbeing, financial stability, and relationship repair – domains that collectively account for the largest share of gambling's overall harm burden.

Concluding remarks

This work demonstrates that gambling-related harms, when measured dispassionately, empirically, and systematically, are comparable in scale and seriousness to the harms associated with alcohol and illicit drugs. By integrating lived experience, empirical and robust measurement, health-economic benchmarking and structured expert judgement, this programme establishes a coherent, public-health evidence base for gambling in Great Britain: one that supports meaningful service evaluation, cost-effectiveness analysis, and proportionate policy responses.

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1. A Holistic Framework of Harm and Recovery

1.1 Background to the research

Gambling is increasingly framed within a public health perspective, aligning it with parallel trends for tobacco and alcohol[1–4]. As an approach that emphasises reduction or prevention of harms across the population, public health approaches require a strong understanding of how harms arise, who they affect, and how they manifest. This necessitates robust frameworks and measurement of harms. Without this, research and data – whether that be basic research, national monitoring or service evaluation – is fundamentally undermined.

Historic approaches for understanding gambling outcomes

Research on gambling has not, historically, focussed on harms. Instead, approaches have usually framed gambling within clinical definitions of 'non-problematic' versus 'problematic gambling'. Gambling problems were largely perceived as an individual problem to be treated with clinical solutions, equivalent to the conceptualisation of a biomedical disease[4,5]. Furthermore, this singular focus on 'problematic' individuals ignored harms across the wider population, alongside the broader commercial and social determinants of harm.

It was within such a paradigm that frequently used measurement and screening tools such as the 'Problem Gambling Severity Index' (PGSI) were developed[6]. It is also becoming recognised that the entrenched use of such 'problem gambler' language (standard terminology in research, clinical, and non-governmental organisations) unwittingly places blame directly on individuals as "the problem". It may thereby contribute to the stigmatisation and exacerbation of gambling harms[7]. Recent commentary has argued[4,8–11] that such conceptualisations and tools are outdated, and are not readily aligned with public health or harm reduction strategies[4,8–11].

When applying public health approaches to gambling, we need to avoid inadequate – and potentially stigmatising – pseudo-clinical categorisations of these historic measurement approaches. Instead, we need to capture the full breadth of harms. This will allow us to appropriately develop and target harm reduction and minimisation strategies[9]. A new generation of frameworks – and associated measurement approaches – is required.

New frameworks of harm: aligned with public health models

The last decade has seen substantial progress in understanding how harms manifest from gambling, and several frameworks have been developed[9,12–17], which have been recently reviewed[18,19].

From these frameworks, the 'Conceptual Framework of Gambling Related Harms' of Langham *et al.*[20] (herein, the 'Langham framework') – led by researchers at Central Queensland University (CQU) in Australia – represents the most comprehensive and robustly developed. It is the most cited framework within the literature, and our previous work with subject matter experts (including those with lived experience) endorsed this framework as understandable and largely comprehensive[19].

This scientific taxonomy categorises harms according to several domains: **financial, relationship, physical, psychological, social/cultural, work/study, and crime.** Within each domain, the harms have spectrums of severity that range from common, low-impact harms, through to crises and ongoing, legacy, and intergenerational harms. It also recognises the wider impact of harms on friends and family of the person who is gambling (i.e., affected others), their community and broader society.

Other frameworks have been variously developed in Canada[12,21], the UK[15,17] and Scandinavia[16]. Whilst these have represented important developments, they have limitations. The frameworks are inherently designed to capture a broad, somewhat generic, non-individualised view of gambling-related harms. The UK-focused 'Framework for Action' contextualised harms within a socio-ecological model which is widely used in public health, examining harm at the individual, family and social network, community and societal level. It aimed primarily to be a pragmatic operationalisation of harms measurement and had relatively limited methodology beyond expert focus groups. Other frameworks lack the sociocultural, policy/legislative, and commercial specificities of the GB context.

However, emerging evidence in the GB context is revealing how specific cohorts experience increased harms and nuanced harms from gambling[22,23]. Furthermore, a recent systematic review[24] has established that gambling harms (and the subsequent health inequalities) appear to be dependent on various social, demographic and environmental conditions – where certain communities and contexts in Britain may experience harms in idiosyncratic ways[24], such as women[25–27], minority communities [22,28] and LGBTQ+ communities[29,30].

Additionally, recent methodological developments[31] have increasingly recognised the impacts and nuanced experiences of affected others, where each individual experiencing gambling problems may typically affect up to six others in their social network[32], with impacts encompassing financial distress, relationship breakdown, anxiety and depression, disrupted parenting and social stigma. Despite such observations, affected others remain under-represented (or entirely absent) from most harm assessment tools and public discourse. Few frameworks fully account for their perspectives, and most policy responses continue to target only the person who gambles.

A final limitation of existing models of harm is the absence of *recovery*. Recovery from gambling harm is often rooted in older biomedical models of gambling behaviour (and where recovery is often simply equated with abstinence), rather than holistic recovery-oriented paradigms, which emphasise strengths-based notions of the 'recovery capital' that individuals can draw upon, which can encompass behaviour change, insight, agency, control and connection[33]. Gambling recovery should therefore look more broadly at improved wellbeing and restored relationships[34,35], and at the core roles played by community integration, social supports, and individual strengths in sustaining change[36].

Together, such limitations underscore the need for an accurate, evidence-based way of understanding gambling harm in Great Britain; a new holistic conceptual model, one that integrates existing frameworks (i.e. of gambling harm and recovery frameworks from adjacent disciplines) lived experience including affected others, accounts for the communities and contexts of harms in the GB context, while simultaneously placing recovery at its core.

1.2 Research aims

This study aimed to develop a holistic framework of gambling-related harm and recovery. The aim is not to supersede existing frameworks, but instead to build on these – based on lived experience of a diverse GB cohort of people who experience harms from their own gambling and as affected others – for a holistic understanding of

the nuanced impacts of gambling-related harms in a GB context, and thereby support harm-based measurement and reduction via policy, education and intervention.

Specifically, the framework aimed to:

- Encompass the full spectrum of gambling-related harm experienced by adults, from low-level impacts through to severe and long lasting.
- Reflect the experiences of both people who gamble and affected others.
- Integrate lived experience perspectives of people in Great Britain alongside existing theory.
- Understand the role of communities and contexts, such as cultural or gendered forms of harm.
- Support the subsequent development of valid and non-stigmatising measurement tools, suitable for use in clinical, research, and population-level contexts (i.e. in Chapter 2).

Whilst this report contains a lay-friendly summary of these findings, a complementary and distinct 'pre-print' academic publication is also available: https://osf.io/yudq6_v1

1.3 Summary of methods

The project proceeded in two stages.

Stage 1 involved a Rapid Evidence Assessment (REA) of existing frameworks, taxonomies, and models of gambling harm, drawing on academic and grey literature. This work synthesised key domains of harm, produced a preliminary GB-tailored framework, and highlighted conceptual blind spots, which became a focus during Stage 2.

Stage 2 consisted of qualitative interviews with individuals who had experienced gambling harm either directly or as affected others. This stage sought to test, refine, and extend the draft framework, ensuring that it captured not only the breadth of harms but also the interconnectedness, context, and lived experience of harm trajectories. **Finally, these findings were integrated alongside Stage 1 to develop the holistic framework.**

Stage 1 methods: REA

Given the existence of existing literature and frameworks of gambling harm, a modified Rapid Evidence Assessment (REA) methodology[37] was first adopted, aiming to:

(1) Understand how gambling harms are experienced by different communities in Great Britain, especially with reference to existing gambling harms frameworks.
(2) Understand what evidence exists about gambling recovery frameworks.
(3) Understand the key elements of recovery frameworks in related health contexts (especially alcohol and drugs), and how these might be relevant to gambling harms recovery.

Searches targeted academic literature and "grey" literature from the policy, health and charitable sectors (see our preprint paper for databases and search strings: https://doi.org/10.31234/osf.io/yudq6_v1). Results were screened assess relevance to our research questions, whether evidence was from UK or comparable contexts, and whether results were published since 2005 (coinciding with the Gambling Act 2005). For full text review, we focused specifically on publications that were most relevant to our research questions, and were of higher quality based on content, clarity, accuracy and quality, appropriateness of methods, and ethical considerations. We

excluded literature that focused on *drivers* of harm (as we were focused on the impacts of harms), and opinion-style pieces. See Figure 1.2 for a flowchart of searches, screening, and publications included and excluded.

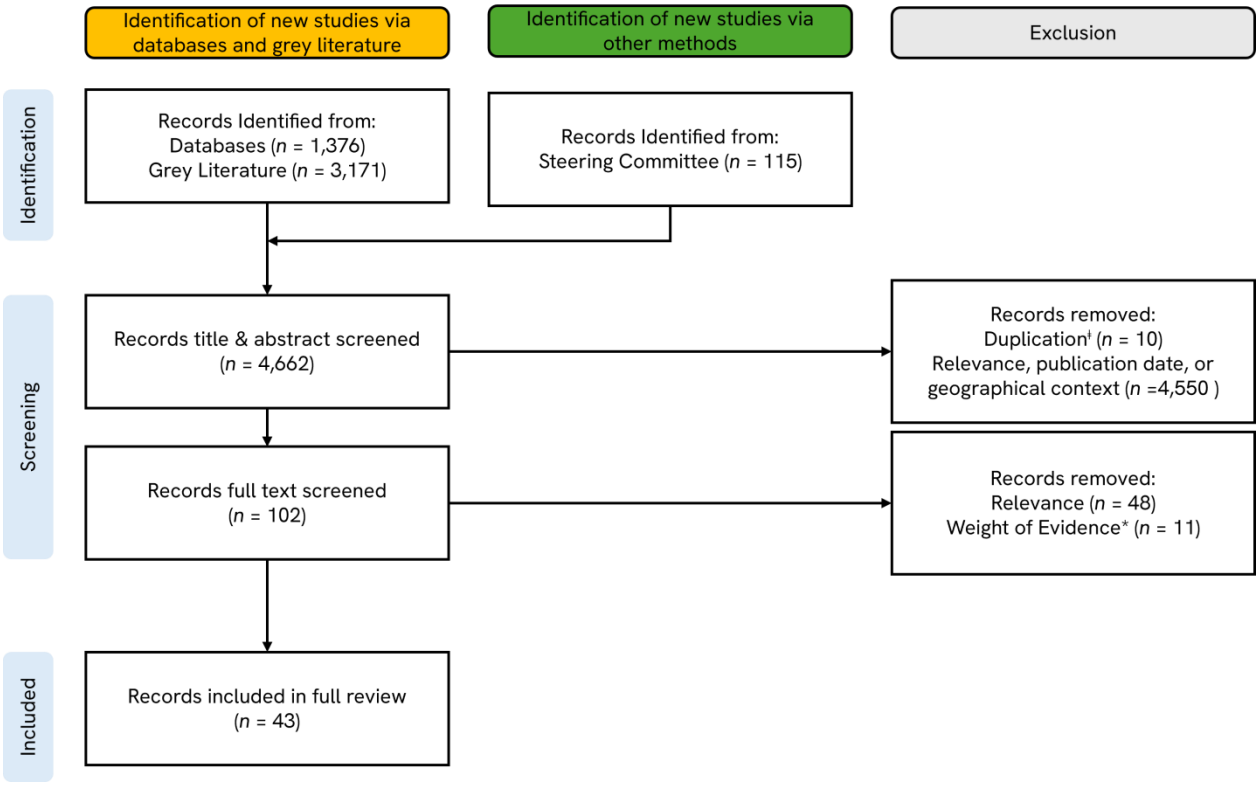


Figure 1.2. *Flowchart of searches, screening, and publications included and excluded.*

A total of 4,662 papers were screened and 4,560 excluded at abstract level. Of the papers screened at full-text level, 42 were included for detailed review and data extraction. For literature synthesis, we used a 'Framework Method'[38], where papers were read in detail, and relevant information extracted, capturing key findings of relevance to the research questions. This underpinned the development of our draft framework and served as the foundation for the second phase of the study: qualitative interviews, where the evolving framework was refined and developed.

Stage 2 methods: qualitative interviews

Stage 2 involved semi-structured in-depth qualitative interviews with individuals who have experienced gambling-related harm (including individuals in recovery), either as people who gamble or as affected others (e.g., family members, partners, siblings, adult children). This phase aimed to use lived experience perspectives to refine and validate the draft harm framework, focusing particularly on aspects of harm not well captured in existing models, and to examine views of recovery and resilience. Specifically, we had the following goals:

(1) Explore identified gaps in the literature from the REA, including: stigma and discrimination related to gambling harms; the broad impact of relationship and community harms; harm related to mental and

physical health (including diet); the importance of reflecting the interplay between different harms, including other types of harms, (e.g. mental health, drugs, and alcohol); co-occurring harms both as a person who gambles and as an affected other; the role of wider social and political factors in driving and creating gambling harms; harms related to low level crime and unethical behaviour.

(2) Explore "recovery" from gambling harms from a variety of lived experience perspectives. We did not approach the qualitative interviews with a fixed definition of recovery to be tested. Instead, using open-ended questions prompts, we explored what the idea of 'recovery' meant to interviewees. In our thematic analysis, we used the rich interview data to develop a model of recovery from the bottom-up.

(3) Explore "dimensions of difference", and how various lifestyle and sociodemographic factors intersect to shape people's behaviours and experiences in relation to gambling and gambling harms.

To achieve these goals, a diversity of respondents was recruited across gambling harms and experiences, alongside different demographics and life circumstances (e.g., age, gender, LGBTQ+ status, ethnicity, etc.; see our preprint for details of cohort and ethical approval: https://doi.org/10.31234/osf.io/yudq6_v1).

A total of 40 interviews were conducted (24 harmed by own gambling; 14 affected others; 2 harmed by both own gambling and affected other) where saturation of themese was reached see preprint). Interviews were conducted online or by phone, lasted between 30-60 minutes, were audio-recorded (with consent), transcribed verbatim, and anonymised. They included a reflective discussion of personal experiences of gambling harms and recovery, followed by a review of the draft holistic framework (presented to participants)**.** Data were coded using NVivo and analysed thematically using Braun and Clarke's approach to thematic analysis[39–41]. Findings from the interviews informed the final holistic framework of gambling harm and recovery framework, ensuring that it reflected both theoretical insights and the lived reality of those most affected.

1.4 Results

Stage 1 results: Rapid Evidence Assessment (REA)

There were three over-arching aims of the REA, presented separately below.

Research question 1: Experiences of gambling harms, with a focus on the GB context.

Five frameworks of gambling harm have been developed over the last decade, variously developed in the GB[15,17], Australia[9], Canada[12] and Scandinavia[16]. These have been recently reviewed[19]. From the GB perspective, the socio-ecological 'Framework for Action'[17] and associated young-person focused version[15], both position gambling harms within a multi-level context: individual, interpersonal, community, and societal. The underlying frameworks have little explicit methodology beyond expert focus groups; largely aimed to be a pragmatic operationalisation of harms measurement, to explore the possibility of attaching cost estimates to various harms.

Our REA of harms in the GB context – drawing from a range of sources – supplements these existing frameworks. This included harm related to work and employment[22,26,42–44], financial harms[22,25–28,42–44], harm related to crime[27,28], impacts on relationships and communities[22,27,28,42,45–47], and impacts on health [22,26,27,42,45], including physical and mental health. Whilst such evidence largely aligns with the broad harm categories from previous

frameworks, these frameworks tend to treat domains in isolation rather than as interacting systems, where few models account for the dynamic and overlapping nature of harm trajectories – for example, how financial harm may catalyse relationship breakdown, which in turn exacerbates psychological distress. Our REA also highlighted the importance of stigma and discrimination in relation to gambling harm, the broad impact of relationship and community harm, and harms related to mental and physical health (including diet).

With regard to stigma, the literature has been recently elaborated by a programme of research on the stigmatisation and discrimination of people who experience gambling harms[48–51]. Drawing on qualitative interviews, discourse analysis and quantitative survey data, this work conceptualises stigma as a socially produced process operating through dominant narratives, labelling and moral judgement, with downstream consequences for disclosure, help-seeking and recovery. It distinguishes between experienced, anticipated and internalised forms of stigma, and demonstrates how gambling-related stigma is shaped by wider social, cultural and institutional contexts, including family, community and treatment and support service environments. Importantly, the programme shows that stigma and discrimination do not operate in isolation, but intersect with relationship harms, mental wellbeing and social exclusion, compounding the overall burden of gambling-related harm and inhibiting access to support.

However, existing frameworks of harm do not fully reflect such experiences, and similarly they tend to overlook the perspectives of different communities and contexts. Here, a recent systematic review[24] has established that gambling harms (and the subsequent health inequalities) appear to be dependent on various social, demographic and environmental conditions, and where inequality and marginalisation amplify gambling harms to specific subsets of the population (e.g. women, migrant communities, those with military backgrounds). Our review encompassed emerging evidence in the GB context that reveals how specific cohorts experience increased and nuanced harms from gambling, notably: women[25–27], ethnic minority communities[22,28] and migrant groups[43,44], military and veterans[52], LGBTQ+ communities[29,30] and affected others[42,47].

Such findings are integrated into our holistic framework (see later section '*Synthesis of literature and qualitative interviews to produce a new framework of harm and recovery*.')

Research question 2. Recovery Frameworks

There is a limited literature on recovery from gambling harms, and no single, agreed-upon definition of 'recovery' from gambling harms exists. Instead, when discussed, recovery is often simply equated with abstinence or the cessation of a 'gambling disorder' diagnosis[34,53]. Moreover, we identified one fully developed framework[54], but this focused on recovery pathways (i.e. different goals and routes, externally directed and self-directed recovery) for gambling problems, rather than the processes involved in recovery (e.g. cognitive mechanisms, resources, or behaviour change).

However, some authors have argued that recovery is not a binary concept (recovered/ not recovered) and should be viewed as an ongoing and dynamic process[53]. This draws on concepts such as strengths-based approaches and notions of "recovery capital"[33]. Such ideas were originally developed in the field of substance related harms, and subsequently extended into mental health, where strength-based approaches and personal capital relate to the internal and external resources individuals can draw upon to initiate and sustain recovery. These include personal capabilities, supportive relationships, social connections, alongside finding meaning through work and other meaningful roles, all of which contribute to the likelihood and sustainability of positive change.

Such ideas have been, more recently, imported into gambling-related academic work, which frame recovery as a multidimensional, person-centred process that goes beyond simply stopping gambling. It instead involves psychological, social, and behavioural change, achieving goals such as regaining personal agency, developing insight into gambling problems, improving emotional wellbeing, re-establishing social networks, and restoring financial stability[34,36,53–56]. This has been described as an ongoing, nuanced and multifaceted psychological process, involving themes such as insight, behaviour change, and a sense of personal agency, accountability and empowerment[55]. It may also involve rebuilding of identity and reconnection with life outside of gambling, with a focus on personal growth and change [56].

Research question 3. Frameworks and measurement of recovery from drug- and alcohol-related harm

In contrast to gambling, recovery from alcohol and drug-related harm has been more widely conceptualised as a dynamic, multidimensional, and often non-linear process. Recovery is consistently framed not solely as abstinence or reduction in substance use, but as encompassing improvements in mental and physical health, social relationships, identity, and broader wellbeing [57–59]. In developing such frameworks, participatory approaches were common, with lived experience perspectives used to develop and refine both conceptual frameworks and measurement instruments [57,60,61].

Most frameworks highlight recovery pathways involving changes in self-concept and identity, personal circumstances, community connection, and employment[59,60,62,63], recognising the role of ongoing support and social integration[58,60]. While abstinence remains a debated feature – central in some models and de-emphasised in others – most frameworks agree that recovery extends beyond cessation and includes life satisfaction and personal growth [58,63].

Validated tools reflect this breadth. The SURE measure[64], WIR[57], R2AR[61], and ADOM[65] all assess domains such as psychological wellbeing, material stability, social support, and hope. These tools integrate clinical, experiential, and community dimensions, supporting holistic recovery that is at once both person-centred and measurable.

Implications for Development of a Holistic Framework of Gambling Harm

Together, the findings from the REA revealed important conceptual insights which were used – alongside the qualitative research, below – to develop a single, holistic framework of gambling harms and recovery.

Overall, the REA confirmed the multidimensional nature of gambling harm, its unequal social distribution, and the need for frameworks that capture both the breadth and interconnectedness of harms experienced by people who gamble and affected others. However, the REA also highlighted a number of gaps in the existing literature base, such as the importance of stigma and the interplay of different types of harm (which are explored below as “research question 1” of the qualitative research). The REA also highlighted the limited and inconsistent approaches to defining and measuring recovery in gambling, in stark contrast to the more holistic, participatory models in the alcohol and drug sectors (explored below as “research question 2” of the qualitative research). Finally, the research also highlighted the nuanced way that certain communities and contexts may experience harm (explored below as “research question 3” of the qualitative research).

The next stage of our study therefore addressed these limitations through qualitative interviews, centring the voices of those most directly affected.

Stage 2 results: qualitative interviews

Research question 1: Explore identified gaps in the literature from the REA, including: the role of wider social and political factors in driving and creating gambling harms; stigma and discrimination related to gambling harms; the broad impact of relationship and community harms; harm related to mental and physical health (including diet); the importance of reflecting the interplay between different harms, including other types of harms, (e.g. mental health, drugs, and alcohol); harms co-occurring as both a person who gambles AND as an affected other; harms related to low level crime and unethical behaviour.

Each of these elements is discussed individually below. First, we briefly discuss the role of wider social and political factors, before focusing on those elements that relate most directly to the lived experience of harm; such as experiences of stigma, relationships, mental and physical health. **In the final section, we discuss how these findings are synthesised with our literature review to produce our final framework of gambling related harm and recovery.**

The role of wider social and political drivers of gambling harm

Across interviews, participants consistently located gambling harms within a wider social and political context. While individual experiences varied, three structural drivers appeared repeatedly and map directly onto the domains captured in our holistic framework.

1. Gambling is culturally normalised and embedded as a social activity.

Participants frequently described gambling as something people "just do" with friends, family, or colleagues. Many traced their first exposure to gambling to childhood trips to arcades, family betting traditions, or work-based routines. The transition to adulthood was framed as a milestone that legitimised gambling as a rite of passage. These early and socially sanctioned introductions often acted as gateways into more harmful behaviours.

"Started getting into gambling, both of us really, when we was old enough to gamble, when we turned 18. I always kept it very minimal, just spend what I could afford, but he took it a bit far really and spent a few years, I'd say, spending far too much money on it, to the point where it was evident that he had a problem." - (Male, 40-44, impacted by own gambling)

2. Wide availability and accessibility enable and sustain harmful gambling.

Participants described an environment where gambling is "everywhere": betting shops, casinos, scratch cards, online platforms, and persistent marketing. Online gambling, in particular, was seen as collapsing barriers between intention and action, allowing people to gamble at home, at any time, and making escalation easier. Incentives such as free bets and bonuses were described as fuelling continued expenditure. These accounts demonstrate how *resource harms* (financial loss, loss of time and meaningful activity) are shaped by commercial and political determinants.

"Just maybe more, like, bets, you know, football bets, that kind of thing. Then it escalated to going out to different places, casinos, etc. But then I wasn't aware of that. So a social evening ended up in gambling" - (Female, 40-44, Affected Other)

3. Escalation across products is common and non-linear.

Very few participants who experienced harm from their own gambling stayed with one gambling form. Instead, gambling often progressed from social sports betting or scratch cards to higher-intensity products such as machines, online slots, or multi-account online betting. Some described early experiences with gambling-like

mechanics (e.g., loot boxes[66,67]) as precursors to later harm. This pattern reflects the framework's *cumulative and interacting nature of harms*, where product design and availability drive transitions into more harmful forms.

Implications for the Holistic Framework

These findings reinforce the need for a framework that moves beyond individual behaviour and captures the structural, relational, and cumulative nature of gambling harm. Social norms, availability, and product design were active forces that shaped the onset, escalation, and persistence of gambling harms. Accordingly, the framework's domains – health, relationships, and resources – should be understood as operating *within* these broader environmental conditions rather than in isolation from them.

Stigma

The qualitative data showed that the concept of stigma, and its relationship to gambling harms, was complex, relating to relationship, community, mental wellbeing and financial harms. As is discussed in further detail below, stigma can often sit within the interplay of relationship and finance harms, as well as mental wellbeing harms. It prevented the person who gambled from talking about their gambling behaviour with friends and family, increasing the depth of the harms experienced, and often delaying them from seeking help. These findings are interpreted in the context of recent research on the stigmatisation and discrimination of people who experience gambling harms, which conceptualises stigma as a socially produced process operating through labelling, moral judgement and exclusion, and distinguishes between experienced, anticipated and internalised forms[48–51].

Given the complex role of stigma, we explore (1) stigma, gambling and masculinity; (2) community harm and stigma; (3) self-stigma and shame; and (4) self-stigma and emotional harm.

Stigma, gambling and masculinity

The interview data shows that ideas of masculinity had a big impact on gambling behaviour, and the relationship with stigma; firstly, in encouraging gambling in the first place, and later – when harms emerged – by shaping self-stigmatising thoughts and feelings of shame linked to perceived failures of control over behaviour or finances.

This was apparent for participants who worked in the police, or Armed Forces, or grew up in a 'working-class' area. They described an expectation that men in these situations would gamble, and indeed they were actively encouraged to gamble. The stigma was not about the act of gambling, but through a culture that prohibited showing weakness, producing a contradictory set of pressures on people. On the one hand, drinking and gambling were the norm, while simultaneously there were expectations that men would exert control over their drinking and gambling. One participant discussed the shame he felt at failing in his military career:

"The drinking was available in the NAAFI [Navy, Army, and Air Force Institutes[1]]. I've already got the baggage that I came with from the early years, childhood years and the gambling, and the gambling increased. This time,

[1] An organisation that provides goods, services, and recreational facilities to UK Armed Forces personnel, typically found on bases and barracks both at home and on deployment

it was mixed with alcohol and also retaining quite extensive responsibility as a soldier. I wouldn't say that it ended my military career, but it probably went someway…'He just put £300 in the bloody machine. Who is this guy? Is he mad?' - (Male, 50-54, impacted by own gambling)

Succeeding financially also formed part of these masculine norms, and the consequent stigmatising beliefs present in these environments. In one case, the participant, affected by his father's gambling, considered how his father had been influenced by the 'bravado' expected within the police force, which both encouraged gambling, but also may scorn or discourage talking about losses.

"It's all just a bit of a vicious spiral really. It all has the same kind of characteristics with drinking and lying. … in terms of communities that you're in, it's almost encouraged a little bit socially, or you feel that you have to live up to this reputation…There's a lot of bravado around that kind of group, where you're trying to stand equal amongst those kind of people and you're doing silly things, but with not the intended result. Gambling, buying needless rounds to try to look impressive in front of people" - (Male, 35-39, Affected Other)

Furthermore, this bravado, strongly correlated with the Armed Forces, and other masculinised spaces, prevented participants from seeking help even when they recognised the need for it.

"I think especially related to veterans; we don't reach out to medical professionals … I think fear that the anxiety takes over and I don't even like to phone the doctors because I feel like I'm putting on people" - (Male, 45-49, impacted by own gambling)

Those who did not conform to societal norms related to gender or sexuality could also experience stigma related to their identity, which then bled into gambling behaviours. One participant, part of the LGBTQ+ community, noted that, in part, his motivation for gambling was dealing with his recent openness around his sexuality and what that meant for his place in society.

"Everything was conflicted, and I feel like alongside a journey of coming out and all that sort of thing, which was happening at the time, perhaps gambling was my way of releasing a lot of that stress, and was something I could sort of prove that I was still quite masculine and I was still one of the lads and I was still doing that." - (Male, 25-29, impacted by own gambling)

Community harm and stigma

Participants who came from a religious background, where gambling was considered unacceptable, felt a different but equally acute sense of shame and stigma. This pattern mirrors findings from recent research, which shows that gambling-related stigma is shaped by wider cultural, community and institutional contexts, and may be intensified where multiple socially marginalised identities intersect[48–51]. In our qualitative interviews, there were instances of participants who were excluded or self-excluded from their family or community, or did not turn to them for support, because they believed that they would be rejected as a result of their gambling. This could also originate from the work environment: in the financial services industry, for example, the financial harm of gambling, particularly defaulting on debts, could jeopardise people's jobs.

The strongest sense of community harm was evident among participants from religious backgrounds or migrant communities (or both), where gambling was widely viewed as morally unacceptable. In these contexts, participants described experiences of social distancing, judgement and, in some cases, explicit exclusion from family or community networks following disclosure or discovery of gambling-related harm. For some, this took the form of direct rejection; for others, the anticipation of negative judgement led to withdrawal and concealment.

One woman, who also identified as part of the LGBTQ+ community, described how these intersecting identities shaped both how she was treated by others and how she experienced harm: *"The community did not trust me. It affected other people seeing me differently, not just a black pretty girl - but they think that black pretty girl that causes lots of shame because being a gambler has, should I say, a stigma. You get to have a lot of names, you get to be called a lot of things... I had lots of negative comments" - (Female, 20-24, impacted by own gambling)*

In other words, community harm linked to stigma often reflected overlapping and mutually reinforcing forms of stigmatisation, where gambling-related harm interacted with other socially salient characteristics (e.g. religious background, sexual orientation, or migrant status) to intensify exclusion, judgement or withdrawal within community settings. Participants who identified as having religious backgrounds were most likely to articulate community stigma, as family and wider relationships were more often entwined than those from other backgrounds.

"I'm a Muslim. In my religion, it is against Islam to gamble, so that had a big impact on the wider community. It's seen as a negative thing. Well, very negative. When people find out or they realise, then having your place in your community and having a gambling issue, then it's obviously seen down on" - (Male, 40-44, impacted by own gambling)

It is important to note that, for some participants, communities could also be a source of support.

Another aspect of community relationship harm seen in the interview data, particularly among affected others, was 'associative stigma' – negative attributes or attitudes to people (i.e. affected others) not because of their own features but because of the characteristics of others that they associate with (i.e. someone with a gambling problem)[68]. Some affected others felt the reflected shame of their partners' or relatives' behaviours. It was not uncommon for those who gambled to borrow money from their wider social circle, for example, and this could cause embarrassment for the affected other, who was part of this same circle.

"… in my friend circle. For example, my partner borrowed money with them frequently, and she's not giving back to them, so obviously, it is having the bad impression towards them. When they speak to me, when I have to pay back to them?" - (Male, 35-39. Affected Other)

One consequence of associative stigma (or fear of it) was that affected others did not discuss the gambling harm that was happening with other people or else restricted who they talked to about it. One woman, whose mother's gambling had a very negative impact on her childhood, did not talk about it with her friends or even her husband, as she described:

"I never told him until we were well into our marriage. We're now 15 years married. I'm ashamed. I'm embarrassed." - (Female, 50-54, Affected Other)

In this case, the participant was clear that she personally understood her mother's behaviour but was concerned that other people may judge her. Other affected others had told close family or friends but would not discuss it with more distant friends or work colleagues. One woman affected by her husband's gambling spoke to her manager, as the situation was hindering her ability to work, and was made redundant shortly afterwards.

Self-stigma and shame

The most common manifestation of stigma in the interview data was that of internalised stigma, also referred to as self-stigmatisation, which often resulted in feelings of shame - that is the "emotional core of self-stigma"[69].

Most of the participants who gambled, and who considered their gambling to have been harmful, articulated a strong sense of shame in one way or another. Their shame had a number of different roots: this was occasionally presented in the unethical way they had gained money to fund their gambling; or the way they had treated their loved ones – particularly focussed on lying to immediate family; or more broadly that they had not lived up to their own code of behaviour. These standards could reflect the values of the communities to which participants belonged but were often experienced as personal moral expectations that participants felt they had failed to meet as a consequence of their gambling.

The stigma or shame resulted in participants withdrawing from those closest to them. There were many examples of participants becoming distanced from contact with their family or friends, or of affected others describing how their son, or brother or sister had become withdrawn from them. Those who gambled were explicit that it was the sense of shame that was driving this emotional retreat. As is discussed in section *the broad impact of relationship and community harm* below, there was a pronounced overlap between shame and stigma, on relationship harms, financial harm and wellbeing harms.

Lying and the consequent loss of trust was one major source of self-stigma and shame; it was very common for participants who gambled to have lied to their immediate family, either about gambling at all, or about the financial impacts of gambling. Participants often expressed regret at how they had lost the trust of their family as a result of lying to them.

"I felt so rotten inside. I'm a really honest person, and it made me lie to people about money and things like that" - (Female, 50-54, Impacted by own gambling)

In some cases, self-stigmatisation and lack of self-esteem had its roots in earlier trauma experienced by participants who gambled, and gambling could be part of their coping mechanism (see section '*other types of harms e.g. mental health, drugs, alcohol'* for more details). Gambling compounded and increased the sense of internalised shame. One participant, who had experienced gambling harms since childhood, recognised how his gambling started after the loss of a sibling and a move across the country, and how he carried this trauma through into adulthood.

"I'd mix in social circles of academics, professionals, senior civil servants, and I'd be there as the boy, or man, or however I felt at the time, feeling inadequate, probably because there's that psychological sort of archive kickback, isn't there, going to the centre of the brain saying, 'You're an arsehole. You can't control your finances. You're not even a third-class citizen. You'll be more than below par.'" - (Male, 50-54, Impacted by own gambling)

For those affected by another's gambling in their childhood, the associative feeling of shame can have long-lasting impact. One woman whose mother gambled in childhood, subsequently had a partner who gambled, and was violent towards her. Her sense of shame led her to hide both facts from friends, who she felt nonetheless knew what was happening to her.

"I remember, the lady next door to me once alluding to something. Trying to ask if I was safe. I just brushed it off, as you do, and just went back inside. So I felt like I couldn't go out without people knowing what I was doing, or I was covering bruises and hiding away [...] It was embarrassing anyway. [Long pause] I don't know that I have any more to say on that one. [Short pause] People knew what was going on anyway." - (Female, 40-44, Affected Other).

Underlying this stigma was often the fear of being judged, and this kept participants from seeking support from friends or family, or from even mentioning it to them. It may be that, as they judged themselves on their behaviour, they expected or anticipated that others would do the same to them. In fact, participants were often surprised at the level of support they received from family and friends when they did reveal the issues they were having.

"I thought everybody would be so horrible with me, because I felt so horrible. Everybody was super nice and everybody really wanted to help me, which I was really surprised at." - (Female, 50-54, Impacted by own gambling)

However, some other participants believed that, although at face value their family were supportive of them, underneath their family still judged them. It is not clear the extent to which this reflected their anticipated stigma, or whether the family member really was tacitly judging them.

Self-stigma and / emotional harms

Spiritual self-stigma and emotional harm was an area that participants felt was lacking in the existing harms frameworks. They felt that these harms were not adequately captured by mental wellbeing harms or relationship harms, although they overlapped. Those who were religious also articulated this as 'spiritual harm', but it also reflected the way that others described their sense of shame at their behaviour, particularly lying to, or breaking the trust of those close to them.

"I was brought up in a Christian family and it's against gambling. You are not supposed to gamble. I found out I was doing that and I found I was disconnected in some way because I can't believe in something and do the exact opposite of what I'm supposed to be doing. If my religion says I shouldn't gamble, then I shouldn't, but I was. So, it made me feel disconnected, like I wasn't really right." - (Male, 25-29, Impacted by own gambling and Affected Other)

The frequent occurrence of self-stigma and shame, and the distinct language used to describe it, suggests that emotional harm could be included on the framework as a subsection of health harms (now Wellbeing Harms); adjacent to, but separate from mental wellbeing harms. As described above, the harm was rooted in participants feeling that they had contravened the values they held, as well as social norms, and was perhaps compounded by their sense of personal responsibility for their gambling behaviour[70].

The broad impact of relationship and community harms

The relationship harms that were experienced by participants were many and deep and have been explored within previous frameworks[20,71,72] (e.g. Langham et al.'s relationship disruption, conflict, and breakdown). The idea of community, however, was varied, and no singular definition emerged. For those who were part of a distinct 'community', particularly religious ones, immediately considered the members of this in terms of understanding community harms. Other participants considered community to be the wider group of friends and relations or even work and work colleagues. In either respect, community could be a source of support but also risked being cut off through the shame felt by the person who gambled, or that felt by an affected other.

Harm related to mental and physical health (including diet)

Most participants had incurred mental or physical wellbeing harms, in ways that have been widely documented in the existing literature[25,42,73,74], and explored within previous frameworks[20,71,72] (e.g. Langham et al.'s "Emotional or Psychological Distress"). Anxiety, stress and depression were the most mentioned mental wellbeing harms, however, in some instances, these mental health issues pre-dated the gambling harms, and

gambling could be a way of dealing with these. The interplay between different types of harms is discussed in more detail in section *'The importance of reflecting the interplay between different types of gambling' harms* below.

Similarly, physical wellbeing harms were often a consequence of, or correlated with, mental wellbeing harms: lack of sleep or weight loss through stress and anxiety or through co-occurrence with alcohol or drug harms. The time taken up with gambling, which could be significant, could impact on the amount of time, and interest that participants had to take part in physical exercise. One woman recalled how her mother stayed out all night gambling, which impacted on her health. A number of participants noted that they stopped going to the gym, or playing sport, or going walking, which had an attendant impact on their physical and mental health

"I felt isolated, and I just didn't want to go out because it was affecting my mental health, so I wasn't going out and getting the exercise that I needed" - (Female, 35-39, Impacted by own gambling)

The physical wellbeing harms, therefore, were generally a result of a lack of self-care, and of the impact of mental wellbeing harms.

The importance of reflecting the interplay between different types of harms

Participants' experiences clearly demonstrate the presence of harms which have been explored within the previous frameworks[20,71,72]. However, the participants' experiences also clearly demonstrate the complexity of gambling harms, with harms often intersecting and compounding. Whilst this interplay was unique for every participant, virtually all participants referenced interplay between resource harms and relationship harms, generally relating to an individual's finances. Additionally, the interplay interconnected with harms to wellbeing, and feelings of shame or stigma.

Different types of gambling harms

Across the sample, financial harms and relationship harms were closely related. Participants described how losses, debt, or the use of shared household funds often triggered conflict, mistrust, and instability within families. These impacts ranged from the accumulation of arrears to the loss of housing, and in many cases eroded the foundations of close relationships. For some who gambled, the strain came not only from the financial damage itself but from the secrecy required to conceal it. For affected others, the consequences were felt through sudden financial shocks, reduced household resources, and emotional burden.

"The news that my brother had, he'd gambled everything away, basically. Where they had a house, they had, it was mortgage-free, the kids had a college education fund, he had literally taken everything. Without his wife's knowledge, he had remortgaged the house, he'd used all the money for that" - (Female, 60-64, Affected Other)

Participants also reported how these closely related financial and relational pressures extended into wellbeing harms. Anxiety, depression, persistent worry, and emotional withdrawal were common, with financial strain and relationship conflict acting as triggers. Shame was frequently described but seldom explicitly labelled, rather participants spoke about associated emotions: feeling embarrassed, guilty, or irresponsible because of losses or the impact on loved ones. Stigma similarly shaped how harms were experienced, with many concealing their gambling from family, friends, or their wider community to avoid judgement.

"Then there was a feeling of shame really, massive feeling of shame about how much money I have lost. How much money I owe, and my wife didn't know anything about it [laughs]. So, I'd hidden it all. She knew I liked to bet, but she didn't know the extent of it" - (Male, 35-39, Impacted by own gambling)

Physical wellbeing was also affected, often as a "downstream" consequence of this nexus of harms. Participants reported disrupted sleep, neglect of nutrition or self-care, and in some cases being unable to afford basic essentials due to gambling expenditure.

"Physical health, as I've stated neglecting myself physically as well to the extent that my self-care suffered considerably, sleeping pattern. Yes, I wasn't taking time to exercise, so everything that I've just said and close personal relationships with my mum, conflict with my partner and probably inevitably breakdown with my partner or that contributing factor" - (Male, 30-34, Impacted by own gambling)

Overall, the interplay between financial and relationship harms was evident across almost all participants' accounts, and these interactions commonly radiated outward to mental, physical, and social wellbeing. Shame and stigma further amplified these impacts, inhibiting help-seeking and reinforcing the cyclical nature of harm.

Intersection of other types of harms e.g. mental health, drugs, alcohol

Participants frequently described how gambling interacted with other forms of harm – most commonly mental-health difficulties and alcohol related harm. These intersections were typically rooted in gambling being used as a form of coping or escapism during periods of stress, conflict, bereavement, isolation, or major life upheaval. Several participants explained that gambling harm began or intensified during relationship breakdowns, caring responsibilities, or episodes of loneliness, including after migration to the UK.

"But deep down, I wasn't born a gambler; I've just turned to gambling because I had problems at home with my ex-wife and it was an outlet to get away from there, where I'm not working, and just be somewhere where I'm comfortable with people around me" - (Male, 60-64, Impacted by own gambling)

Others described gambling as a release from emotionally difficult or unhealthy relationships, only to find that it compounded existing problems and made it harder to leave or recover.

In addition to relationship-driven stress, some participants framed gambling as a response to deeper forms of isolation: cultural, social, or linked to identity. For some, migration, disconnection from community, or struggles with sexual identity shaped both the onset and severity of their gambling.

".. culturally, I didn't really fit in. Maybe that is one part that led me to gamble or made it more likely that my gambling was kind of more severe than it could have - might have been if I wasn't an immigrant to this country. Another I would say is that I guess I could say struggles with sexual identity when I was younger; that as well affected it" - (Male, 20-24, Impacted by own gambling)

Alongside these mental-health connections was often co-occurring alcohol use. For some participants, gambling and drinking simply occurred together. For others, gambling was described as directly triggering or exacerbating alcohol use – particularly when gambling took place in environments where drinking was normalised, or when alcohol was used to cope with gambling-related stress, guilt, or relationship conflict.

These combined harms often intensified one another. Participants described cycles in which gambling led to emotional distress, which then increased alcohol consumption or further gambling, with cumulative impacts on relationships, work, and wellbeing.

In summary, gambling frequently operated as a coping mechanism in the context of other harms, while simultaneously generating new harms that compounded those existing pressures. These intersections

underscore the need to understand gambling not as an isolated behaviour but as one component within wider constellations of stress, mental-health challenges, and substance use.

Harms co-occurring as both a person who gambles AND as an affected other

Only two participants in the sample reported experiencing harms both as a person who gambles and as an affected other. In both cases, these harms formed *separate* cycles rather than a single causal pathway, and across both accounts, there was no clear continuity or direct link between the two sets of harms.

Other participants – while not affected others in a formal sense – did describe being introduced to gambling by family members. In these cases, early exposure normalised gambling and shaped later behaviour. One participant explained how growing up around their father's casino play made gambling feel familiar and unproblematic:

"He had free hotels and just things like that, so it led me into the beginning bits of just being comfortable with these games, and comfortable with these machines." - (Female, 30-34, Impacted by own gambling)

Another participant described accompanying their brother to casinos and later continuing to gamble alone, eventually losing control once that family influence was no longer present.

Overall, while some participants were introduced to gambling by relatives, harms experienced as a gambler and harms experienced as an affected other were typically *separate trajectories*. Where overlap did occur, it was usually through early familiarisation with gambling rather than through direct harm caused by another person's gambling.

Harms related to low level crime and unethical behaviour

It was rare for participants to feel that the 'legal issues and crime' section of existing harms frameworks was relevant to themselves, or to the person in their lives who gambled, and yet there were many examples of criminal or unethical behaviour, largely focussed on how people obtained money to gamble. While participants discussed these incidents within the 'resources harms' categories, the label 'crime' did not resonate.

Within families, there were instances of those who gambled taking money without permission; children (largely as young adults) stealing money from their parents, siblings stealing money, people taking on debts fraudulently in their spouse's name, or parent's taking money from their children's savings. These acts were largely not perceived as criminal, although one mother who had spent her children's savings did see this as unethical "I suppose it's theft".

Broadly speaking, if the police were not involved, then it was not necessarily seen as a crime. Where money was stolen from parties outside of the family, for example, from work, this would be classified as criminal. This had implications for the wording on the framework, if the intention is to capture harms that were more 'low level' or unethical.

There were examples of low-level crime, some directly related to gambling harms, others related to the trauma or complex life events that gambling was a response to. One woman, whose partner gambled, resorted to shoplifting to feed her children, when the partner had spent all their money. A man who gambled admitted to stealing from shops when he had no money but didn't initially see this as a crime.

"I guess that was an aspect of that area, but I wasn't actually legally convicted or anything" - (Male, 30-34, Impacted by own gambling)

As we discussed earlier in section '*Other types of harms'*, the harms of gambling are often co-occurring with alcohol-related harms and may increase the likelihood of actions that could be criminal or unethical. For one participant, this resulted in disreputable behaviour when he had lost money at a casino.

"I can't attribute it directly to gambling, but gambling for me came alongside drinking, which meant that I was sometimes coming out of casinos and I wasn't behaving in the way in which was respectful…Had I not lost money and had I not felt the need to be drinking. I might come out and I might be starting fights with people and things like that. Although I never got arrested or anything like that, I could have been very easily." - (Male, 25-29, Impacted by own gambling)

There were other examples where the criminal behaviour was not solely attributable to gambling behaviour, but a combination of other co-occurring behaviours, failing a drugs test, and ABH (actual bodily harm) as well as fraud. The effects of a criminal conviction, however, could be long lasting, and cause a further layer of stigma.

"I found it myself when I applied to [a treatment support organisation] because of the ABH charge that I had previously, although it was related or could be related to my gambling and behaviour related to gambling, I then felt a lot of stigma when I was told, 'Oh actually we need to do a further risk assessment. You might not be allowed because you could be a risk to other residents.' So, I think if you've got a criminal conviction, even if it's relating to your addiction and they understand it, there is a lot of stigma around that." - (Male, 45-49, Impacted by own gambling)

The issue of 'unethical' behaviour is complex and can reflect the shame that participants felt over their behaviour towards their loved ones. As noted, most did not see taking money from close family members as necessarily criminal but recognised that it was unethical (where such behaviour may, more broadly, lead to under-reporting of criminal behaviour when understanding and measuring gambling harms). The harms from this behaviour are generally conceptualised as relationship harm, or a feeling of shame, whether the acts in questions were illegal or not. The perception of unethical behaviour, such as not repaying debts, therefore appears to be rooted in the social norms and personal values of the individual.

Research question 2: What does the interview data tell us about "recovery" from gambling? What is 'recovery' from gambling harms?

The concept of 'recovery' from gambling harms and the initial recovery framework that we shared in the interviews (see preprint: https://doi.org/10.31234/osf.io/yudq6_v1) generally resonated positively with our participants, whether they were people who gambled or affected others. As with the Harms framework, some changes were made to the initial framework because of the following insights. Two qualities of recovery mentioned by participants during the interviews were:

(1) **The breadth of recovery**, because it affected many aspects of life - as reflected in the framework - and was not solely the cessation or reduction of gambling. As one participant described:

"I don't think it's just recovery from gambling. It's recovery from how depressed I was. It's recovery from how mentally ill I felt. Everything that went with gambling" - (Male, 30-34, Impacted by own gambling)

With reference to a sibling who had experienced gambling harms, another participant felt that recovery:

"*is a whole-life change. Everything in his life has to change for the better, and he needs to stay on that path... his hobbies changed, his friends changed, his relationships changed and if you go back, then he'll probably gamble.*" - (Female, 35-39, Affected Other).

(2) **Recovery as a process,** which may take place over a long period of time, as described by one participant who had experienced harm from their own gambling:

"it didn't happen in a day. It took many, many months and more for me - for it to like impact me" - (Female, 55-59, Impacted by own gambling and Affected Other)

Some participants saw recovery as something that would continue to require a degree of effort or vigilance:

"It's just still the ongoing battle of all of it really" - (Female, 45-49, Impacted by own gambling)

While the concept of 'recovery' from gambling harms resonated with participants, the term 'recovery' was not always preferred. Affected others tended to feel that it did not describe their own experiences; but it was nonetheless relevant to the experiences of the person who gambled. Examples of how affected others chose to describe their experiences included:

- Maintaining better wellbeing: *"Maintaining a better sense of well-being, which, for me, kind of sums up what recovery is really, once you reach a point in your life where you just feel well. You just feel better about things."* - (Male, 45-49, Affected Other)

- *"Coming out the other side"*: Even if it wasn't you doing the physical gambling, it's just about you coming out of the other side. Another affected other talked about gambling harms as a 'trauma' she had to get through, whereas she felt her partner's gambling harm was 'an addiction' that he would have to give up.

- Breaking an unhealthy cycle: Referring to both their own experience as an affected other and their relative who had gambled to a harmful extent, one participant described it as*: "We've broken the cycle, the really unhealthy cycle, we've broken it, we've recovered, we're better. It's no longer an issue."* (Female, 50-54, Affected Other).

Some participants who had experienced harm from their own gambling also expressed a dislike for the term 'recovery'. This usually stemmed from feeling that it had negative connotations, for example being associated in their minds with physical illness or harms from drugs or alcohol.

Components of recovery: resources, relationships and wellbeing

This section sets out the findings from the qualitative interviews in relation to each of the three components of recovery: resources, wellbeing, and relationships. These are closely intertwined, as we saw with people's experiences of gambling harms.

Resources

The 'resource' component in the recovery framework comprised 'financial stability' and 'meaningful activities, work or study'. Both these aspects were understood by participants and reflected their experiences, whether they were people who gambled or affected others.

Financial stability came about from cutting back spending on gambling or stopping spending on gambling altogether. Ways of achieving this included setting spending limits on gambling websites or activating a bank card gambling block. In some cases, it meant conceding control of finances to a family member or friend, as a way of limiting access to money that might otherwise be spent on gambling, as the following three examples illustrate:

- One affected other described how her brother now had his wages paid into her account so that he did not spend it on gambling, from which she gave him a proportion as spending money and transferred the rest to his family. She acknowledged that "*it is not nice for a fully-grown man to have to have pocket money from his sister*" - (Female, 35-39, Affected Other).

- Another affected other participant talked about having to be 'really on it' in terms of monitoring his parent's bank account to make sure they were not going overdrawn because of gambling – something that he found frustrating to have to do - (Male, 35-39, Affected Other).

- A participant harmed by their own gambling had stopped gambling a few years ago with professional help. To help maintain his abstinence, he sent his income to a friend to look after, keeping only a small proportion himself, and getting money from his friend for food and bills as necessary. He explained this was "*...so I don't have that temptation to gamble or I feel safe that if I had a relapse, then he would know about it, probably, or at least I would relapse and gamble a small amount of money, but not everything*" - (Male, 20-24, Impacted by own gambling).

Having a plan to deal with gambling-related debt was also part of achieving greater financial stability for some participants, which might involve making individual arrangements with creditors, setting up a debt management plan or personal insolvency. The timeframes for paying off debt could be long, as one participant described: "*I still have to pay interest for the foreseeable future [...] so it's even affecting me now*" - (Male, 30-34, Impacted by own gambling).

The positive outcomes of having more money and more stable finances included being able to save money; having money to pay for essentials (such as car repairs) or non-essentials such as holidays and presents for family members; being able to go out socially with family and friends; and being able to provide more for children. Mirroring the evidence in relation to harms, exercising financial control had positive impacts on relationships, as one participant described:

"The restrictions that I put on myself have meant that I don't have arguments about finances with my partner." - (Male, 25-29, Impacted by own gambling)

One affected other described no longer having to work extra shifts to make up the money he had been lending his relative for gambling, which in turn meant he felt less stressed.

Meaningful activities, work or study: Types of activities mentioned by participants in this component of recovery were paid work; education; and engaging in clubs, hobbies and pastimes. In essence, it was linked to (re)-discovering activities that gave purpose and meaning to people's lives and in turn improved their wellbeing. One affected other, for example, described how the routine of paid work had been important in dealing with her partner's harmful gambling and the fallout from it, because it kept her busy, which was positive for her mental wellbeing and, in her words, represented a form of 'self-preservation'.

For participants who had stopped or cut back gambling, it was also about keeping occupied, to distract from thinking about starting to gamble (or gambling more) again. Participants in this situation talked about working harder in their job now they were not gambling or gambling less; getting more involved in clubs and social activities at university; and regaining their ability to concentrate on work or studies. One participant was able to complete a work-related college course since she stopped gambling, having previously dropped out – which also implies a sense of achievement that previously was not possible:

"I've had to stop it [gambling] to get everything back to normal. I couldn't do it while I was doing that. While I was gambling, there was no way I was going to do anything." - (Female, 45-49, Impacted by own gambling)

Getting a second part-time job meant that one participant no longer had the time to gamble as much as he had in the past, which meant he was financially better-off as well.

Wellbeing

The 'wellbeing' component in the recovery framework comprised physical wellbeing and mental wellbeing, although it was clear from the interviews that these could be closely linked.

Where participants who had stopped or reduced gambling described improved physical wellbeing, this was as a result of engaging in more physical exercise; eating more healthily; and a reduction in stress-related health issues such as migraines (where the stress was linked to gambling). Feeling better physically led to positive impacts on mental wellbeing as well, such as less anxiety, reduced stress, improved self-belief and confidence.

Nonetheless, several participants emphasised that, while their mental health had improved since they stopped or cut back gambling, their mental health problems had not gone away (including in a few cases depression and suicide ideation). For those who had previously used gambling as a means of coping with stress, this could mean finding new coping strategies such as a hobby or physical exercise, as two participants described:

"I have to manage my emotions, I have to manage stress because when I was gambling, whenever I had stress I'd gamble." - (Female, 20-24, Impacted by own gambling)

"So before, I would always go to gambling to help lift my mood, now I find other things… your mental health doesn't just stop just because you've stopped gambling. Your mental health, you've got to be stronger now than ever before." - (Female, 45-49, Impacted by own gambling)

For affected others, their own mental wellbeing was often interlocked with the situation of the person who gambled (unless they were estranged). For example, one father described feeling less stressed and anxious because he knew his adult child was gambling less than before and was not showing signs of harms from gambling. For another participant, rebuilding trust with a close relative once they had stopped gambling also resulted in improved mental wellbeing:

"For me, once the trust was back in place, that was less stress on my brain, whether it be worrying about my mum or having to come to terms and deal with the lies." - (Female, 40-44, Affected Other)

Other things that participants had found helpful for mental wellbeing (whether as an affected other or a person who gambled) were getting professional or peer support; and being open with people about their experiences of gambling harms, as one affected other described:

"… if you actually are open and talking to people and telling them what's wrong and telling them how you're feeling and what you're comfortable and uncomfortable with, it's a lot more useful. So, for my own well-being it's been a massive shift." - (Female, 30-34, Affected Other)

Relationships

Mirroring the harms framework, the 'relationships' component in the recovery framework that was discussed in the qualitative interviews comprised (1) close/personal relationships, (2) community relationships and (3) social relationships. Most of the discussion in the interviews focused on close/personal relationships. There were mixed views among participants about the personal relevance of 'community' relationships to them, depending on whether they felt part of a community, be that an extended family, close-knit neighbourhood, social/sports club, work colleagues or faith community; and there was an overlap in people's mind between 'community' and 'social'. But in fact, across all three types of relationship (close/personal, community, social), there were four common themes in the interview data: openness, trust, distance, and support, which are described below with examples from the three different relationship types.

Openness: Both affected others and those impacted by their own gambling talked about the importance of openness in re-building relationships that had been harmed by gambling. As one affected other described:

"… it would look like building bridges, patching up, just building on relationships that might have been impacted." - (Female, 30-34, Affected Other)

This meant the person who gambled accepting, and being open about, the gambling problems they had experienced. As one affected other noted, even several years after her brother had stopped gambling, there were still new things emerging about what he had experienced and the impacts of gambling harm. For affected others too, it meant talking to friends and family about what was happening and what they were experiencing as a result of someone else's gambling – which could be the key to unlocking emotional and other support.

Trust: The interview data highlighted how it took time to rebuild the loss of trust (particularly in close/personal relationships) that occurred as a gambling harm; and how that trust could be fragile. One affected other discussed how her partner's relapses into gambling came 'with a load of mistrust' and consequently "*there's not a full level of trust there… people have longer memories*". And, while another participant felt that her sibling was telling her the truth now that he had stopped gambling harmfully, nonetheless she still felt that "*you have to second-guess everything that he says as well because you're just so used to the lies*".

Openness was one way to rebuild trust, but for some affected others regaining trust was also linked to monitoring for any resumption or escalation of gambling, for example checking mobile devices for signs of gambling, as an affected other described:

"I'm monitoring her activities. Openly, in the past, a bit more covert now, because the trust has built back up and we have open communication and she actively admitted that she had a problem, that was the hardest bit." - (Female, 40-44, Affected Other)

These tensions were also evident in the interviews with people who had gambled harmfully. One participant described how "*I am trying to build trust with people to make sure that they can rely on me; I am actually trustworthy, I am not that person anymore*" but her family (in her view) still thought she was lying; and this was not helped by the fact that they lived in a different country which made communication difficult. Another

participant felt that while her immediate family was supportive, they would nonetheless always be questioning her: "*They might not say it out loud, but they will be thinking it*".

For one participant, a sign that trust had been rebuilt with his adult children was that they were now "*reaching out to ask me things or asking for my advice*".

Geographical Distance: For affected others, creating physical distance from the person who gambled (particularly in close/personal relationships) could be a way for them to move on in their own lives and look after their own wellbeing. One participant felt that his life had improved since starting his own family and moving further away from his parent who had a gambling problem. Another spoke about having to 'break free' from a parent who gambled, resulting in a years-long estrangement. In some cases, participants had reconnected with the person who gambled, for example after they sought help with their gambling problems. Affected others who had separated from partners because of their gambling problems talked about removing themselves from the setting where gambling harms were first experienced and limiting communications – although some communication and contact might still be necessary, for example where there were children.

As well as creating distance, there were examples of how distances (physical and emotional) could be closed and relationships rebuilt. Participants talked about spending more time together as a family or with friends once their relationship with gambling had changed (often either reduced or ceased), as one person who gambled described:

… I am much closer with my family now. I feel much more involved. I don't feel like I'd have to hide anything, and that's always something I'm grateful to wake up knowing." - (Male, 35-39, Impacted by own gambling)

An affected other reflected that, since her mother had stopped gambling harmfully, *"I spend more quality time with her, because when she was gambling, she was always distracted"*. Organising family and social activities was also a way for affected others to support the person who gambled, by providing distraction from gambling.

Support: A key element of the 'relationships' component for affected others and people who gambled was having a support network – whether that was family, friends, clubs/associations, faith groups or professional/peer support. Supportive relationships were important in helping participants to stop or cut back gambling in the first place, and in maintaining this reduction. Some of the impacts of having a good support network mentioned by participants were having someone to talk to honestly and openly; reduced feelings of isolation; a boost to confidence and self-belief; and motivation.

One participant talked about the role of his parents in motivating him to maintain his gambling abstinence, as well as the benefits of attending gambling support groups:

"It gave me the impression that I'm not alone and there's always a way to stop it. [...] I think it had a very positive impact on me. It made me confident. I had more confidence in myself." - (Male, 25-29, Impacted by own gambling and Affected Other)

Supportive relationships were equally important for affected others. One participant described being supported by family and friends after her relationship with the person who gambled had broken down:

"So that was also very, very helpful in terms of them checking in, me being able to speak to them, and them identifying if I was in a good space or a not-so-good space, and things that can support me with that as well." - (Female, 40-44, Affected Other)

Mechanisms to manage or mitigating harms from gambling

We turn now to the things that people might do to manage or mitigate harms from gambling, which our initial framework summarised as 'control', 'insight', 'behaviour change' and 'ownership'. These four components of recovery were generally well understood by participants – both as components in their own right, and as things that were interconnected and synergistic, as described by participants who had previously gambled harmfully:

"I know the insight and the harm that it's caused me, and I can wake up to that, then hopefully, I can take ownership; change my behaviour and take back control." - (Male, 40-44, Impacted by own gambling)

"Once I started to establish control over the gambling, I started to understand a little bit more about why I did the things that I did. That gave me more insight, which has helped maintain that control, which influenced a change in my behaviour, because I started to understand the addiction more. I started to understand me more, which allowed me to gain ownership." - (Male, 45-49, Impacted by own gambling)

One participant emphasised that, in his experience (as someone who had experienced gambling harms and now worked in gambling treatment and support), all these things were difficult to achieve in the early stages of recovery from gambling harms:

"You find it very difficult to control urges, to control yourself, to control your thoughts. Behaviour change, yes, in the initial stages you find it difficult. It's not easy. Ownership, you struggle to accept what you've been through, what you've done, that shame, that guilt, that embarrassment." - (Male, 30-34, Impacted by own gambling)

For the most part, affected others reflected on the four components in relation to people who gambled, rather than to their own experiences.

Control

In our initial recovery framework that we discussed in the qualitative interviews (that was developed from the Stage 1 REA), control comprised indicators such as 'effective coping strategies' and 'extinction of urges'. Examples of control mentioned by participants were:

- Engaging in distracting activities, such as work or sport (as described above under 'resources').
- Removing or limiting access to gambling, such as setting limits on online gambling sites; self-excluding from gambling sites or venues; activating bank card gambling blocks; avoiding gambling venues; paying for ad-free TV streaming apps.
- Avoiding environments that might be triggering, such as online group chats about gambling, as one participant described regarding a workplace lottery syndicate group chat: "*I would rather miss out on them than be in those gambling areas, that temptation, so to speak.*". Another participant talked about changing his circle of friends, where those friendships were linked to gambling.
- Getting support e.g. from a GP or gambling service.

- Having a plan in terms of how you spend your time, budgeting your money: *"having a plan is really the best option."*

Affected others could be instrumental in the exercise of control, such as one woman who had helped her parent delete all their online gambling accounts; unsubscribed them from marketing services; and blocked all the emails coming from gambling operators.

Insight

In our initial recovery framework, insight comprised indicators such as 'realistic thinking', 'positively reframing relapse', 'awareness of triggers', and 'awareness of impacts'. Examples of insight mentioned by participants were:

- **Understanding the motivators and drivers of gambling, and how to address them**, for example through getting professional help as one participant described: *"at the beginning I had no insight, but then you go through an addiction clinic where I actually gained insight… You need a reality check, and it needs to be big enough to prompt you to make the change and then try to want help."* – (Male, 30-34, Impacted by own gambling)

- **Understanding that gambling can be associated with harms and have negative impacts for the person who gambles and those around them**: This insight was mentioned by people who gambled and affected others in the interviews. It included understanding that gambling can be a behavioural addiction that is difficult to stop, as one affected other described: *"you cannot just say this as it is a lifestyle choice"*.

- **Understanding when to cut back or stop gambling**: based on past experience of gambling harms, one participant (who continued to gamble but less than before) felt "I can really identify a lot easier when it's becoming a problem." Another described how a lapse into gambling harms (having cut back but not stopped gambling) *"absolutely confirmed for me that I cannot gamble at all. Just one bet turns into two... There's no point pretending otherwise… I can't have that first bet."* - (Male, 45-49, Impacted by own gambling)

- **Realising that empathetic help and support is available**: for some participants, accessing professional or peer support was a turning point, because (as described above) it provided insight as well as practical ways to control gambling and bring about sustained behaviour change. Finding out that such help exists was an insight for one participant who explained: *"After I've stopped gambling, I've experienced actually what I didn't expect, because I thought everybody would be so horrible with me, because I felt so horrible. Everybody was super nice and everybody really wanted to help me, which I was really surprised at. People kind of understood."* - (Female, 50-55, Impacted by own gambling)

Some participants who started gambling at a young age talked about gaining insight as they grew up and matured, taking on new responsibilities such as living independently, being responsible for bills and for a family:

"I have different priorities I suppose now. I have actual financial responsibilities. I don't just live at home." - (Male, 25-29, Impacted by own gambling)

"I feel like my maturity levels were really low, and I feel like I hadn't grown up at the period when I was gambling. I just feel like I didn't have the knowledge and the tools to be able to prevent it from happening, whereas now I would." - (Male, 25-29, Impacted by own gambling)

Participants mentioned various other sources of insight, ranging from a sudden or gradual realisation that something was wrong; ultimatums from, or concerns raised by, partners, friends or family:

"I've always known that it wasn't right, but I didn't admit it to myself." - (Female, 45-49, Impacted by own gambling)

"Something just kicked in and I thought, no, this really can't go on. Number one, I can't afford to lose that sort of money in that amount of time." - (Male, 65-69, Impacted by own gambling)

"…something just like clicked in my head where, no, this is not for me anymore because [...] especially when you're on benefits because you can't work. Like it does - it can overtake your life." - (Female, 55-59, Impacted by own gambling and Affected Other)

Accessing gambling treatment or support was also an important source of insight for those who used it, as noted above and as another participant described in relation to peer support:

"I think listening to other people's and reading other people's situations and stories is quite powerful - because everyone's is slightly different." - (Female, 35-39, Affected Other)

Behaviour change

In our initial recovery framework, behaviour change comprised indicators such as 'control/abstinence of gambling', 'substitute activities' and 'increased productivity'. Essentially, therefore, behaviour change is the manifestation or practice of 'control', as discussed above – engaging in distracting or substitute activities; removing or limiting access to gambling; avoiding environments that might be triggering; and making plans for how to exercise greater control and sustain behaviour change. Other behaviour changes mentioned in the interviews were stopping gambling-related lying e.g. about losses, time spent gambling; and changing routines and friendship groups to 'design out' the temptation to gamble.

For some participants, treatment and support had made sustained behaviour change possible in a way they had not been able to achieve on their own: *"I've tried many times beforehand and I never lasted more than two weeks or so without gambling. I thought it was impossible to quit forever... those beliefs that I developed in rehab helped me change my behaviour."* - (Male, 20-24, Impacted by own gambling)

Another participant described her behaviour change as a conscious and ongoing process: *"I have to change that behaviour every day. My behaviour change has to be every day. It's not I can just change it from month to month, it is a daily thing"*. - (Female, 45-49, Impacted by own gambling)

Affected others played an important role in instigating and supporting behaviour change – and in some cases this meant making themselves more physically and emotionally available to the person who gambled. One participant talked about making sure her sibling attended peer support meetings in the early days after he had disclosed his gambling problems to his family.

Ownership

In our initial recovery framework, ownership comprised indicators such as 'personal empowerment', 'personal responsibility', 'self-help', 'ability to control'. Of the four components, this was the one that participants had more difficulty in understanding (although most were still able to reflect on what it meant). A sense of ownership seemed to come about as a result of insight, control and behaviour change, again highlighting the synergy of the four components. Examples of ownership mentioned by participants included:

- Owning the issue, by recognising that gambling is a problem that is causing harm and needs to be addressed, as one participant put it: *"owning up to what you was, how it was impacting you"*.

- Feeling accountable for yourself and your life, for example as a result of exercising control over gambling and/or seeking support, and the positive impacts that brought.

- Feeling stronger, less isolated and more confident, something mentioned by affected others and people who gambled. One participant who had sought support talked about *"Understanding that you're not suffering in silence, you're suffering with other people, and that every individual journey is different but collectively you can actually overcome this, was quite empowering."*

- Thinking about the future, setting goals, making plans, which was closely linked to having greater financial stability and spare money to spend on 'nice to haves'.

- Feeling like yourself again as a result of stopping or cutting back gambling; or for affected others as a result of distancing themselves from the person who gambled; getting support etc.

These interconnected aspects of ownership were neatly summed up by one participant who had stopped gambling:

"I feel much happier about myself. I feel much more in control, that nothing is holding me back, that I can focus on the future, that I can look forward instead of focused on the now, that I'm not held back by grief or a self-destructive behaviour, that the future is possible." - (Female, 30-34, Impacted by own gambling)

As mentioned previously under 'resources', ceding control of finances to someone else could be a positive thing because it helped people control their spending on gambling.

Research question 3: What does the interview data tell us about how these "dimensions of difference" intersect to shape people's behaviours and experiences in relation to gambling and gambling harms?

As noted in the research methods, participants were purposively recruited to ensure diversity across demographics and life circumstances. Drawing together some of the findings from RQ1 above, the interview data provides some insights into "how dimensions of difference intersect to shape each person's experiences and actions"[75] in relation to gambling and gambling harms. These dimensions of difference included (1) the places where people grew up or the environment in which they worked; (2) minority ethnicity, faith and culture; and (3) sexuality. They shaped people's experiences in three ways: by normalising gambling; though the gambling-related stigma they experienced; and through using gambling as a coping mechanism. We explore these intersections below, using the interview data to demonstrate how different dimensions of difference "intermingle to create particular outcomes"[75].

The places where people grew up or the environment in which they worked

The data from several interviews indicated that growing up in a community where gambling was a regular social activity could be a factor in normalising gambling, especially for men. Some male participants felt that gambling was one of the few social activities that had been available to them where they grew up; or that their neighbourhood had influenced their perceptions of gambling:

"Certainly growing up in what would be regarded, I guess, as a bit of a rough area. You're surrounded by people in pubs and drink. On some occasions, you knew people that would do drugs. You're kind of born into a life of not thinking anything is wrong with it." - (Male, 40-44, Impacted by own gambling)

One female participant, who worked in the construction industry, observed that football betting was common among the young men on building sites. A participant who had been in the Armed Forces felt that the drinking culture he experienced while on active service was similarly tied up with normalising gambling and other risky behaviours:

"I suppose it's more just of a culture thing really, a community kind of culture driver." - (Male, 45-49, Impacted by own gambling)

This same culture created a barrier to help-seeking in his view, which he linked to stigma and masculinity (as discussed in earlier sections), and persisted after leaving the Armed Forces.

An affected other described a very different experience with her ex-partner who was a financial services professional. She felt there were social expectations on them and their family as a result of his profession that meant she was reluctant to discuss the gambling problems and harms that were occurring. Taken together, these findings indicate that class plays a role in people's experiences of gambling and gambling harms, even if it is not overtly recognised.

Minority ethnicity, faith and culture

There was a common intersection in the interview data between minority ethnicity, faith and culture related to the stigma experienced around gambling and gambling harms, as well as a sense of dislocation and disconnection.

One woman, who experienced harm from her own gambling, felt that her Black African heritage played a role in the gambling-related stigma that she experienced:

"I would say when it comes to gambling, there are actually a lot of black people that gamble and there is this stigma that a Black person is a gambler, and being black, it actually affected me because people actually felt that that was a fact." - (Female, 20-24, Impacted by own gambling)

This stigma served to compound a long-held sense of 'not belonging', linked to moving to the UK from the country where she was born as a teenager. The sense of being an outsider was mentioned by another participant who had moved to the UK as a pre-teen and felt that gambling has been a coping strategy (also linked to his sexuality, as we describe below):

"I guess gambling kind of in a way helped me cope to the lack of deep social connections that I lacked here in the UK. Culturally, I think that's an important aspect is that culturally, I didn't really fit in." - (Male, 20-24, Impacted by own gambling)

There was also a feeling of dislocation caused by gambling where it was counter to someone's culture and/or faith. One participant, from an Asian background, described the upset and disappointment felt by his parents when they found out about his gambling problems, which clashed with their hopes and expectations for him:

"… education was prized and revered, and really nobody that I know has gambled in my family… Asian parents, they want to talk about their children in a particular way regarding their successes." - (Male, 30-34, Impacted by own gambling)

Another participant, of Christian faith, felt unable to go to church or *"share my problems with my spiritual leaders"* because of his gambling and the problems he experienced because of it.

Sexuality

For two participants, gambling was a means of coping with the stress and shame they felt as young men coming to terms with their sexuality. For one of them, gambling was in any case a common pastime with his friends where he lived (reiterating the importance of where people lived or worked):

"I feel like alongside a journey of coming out and all that sort of thing, which was happening at the time, perhaps gambling was my way of releasing a lot of that stress, and was something I could sort of prove that I was still quite masculine and I was still one of the lads and I was still doing that." - (Male, 25-29, Impacted by own gambling)

The other participant described how *"gambling in a way helped me escape those feelings of shame related to sexuality"*, in the context of a strict religious upbringing. For him, gambling was also a way of coping with social and cultural isolation, having moved to the UK from another country as a pre-teen.

Synthesis of literature and qualitative interviews to produce a new framework of harm and recovery

Below, we integrate the nuanced perspective of these in-depth qualitative findings alongside the results of the literature, to produce our holistic framework of harm and recovery (see Figures 1.1 and 1.2, below, which are repeated in the executive summary).

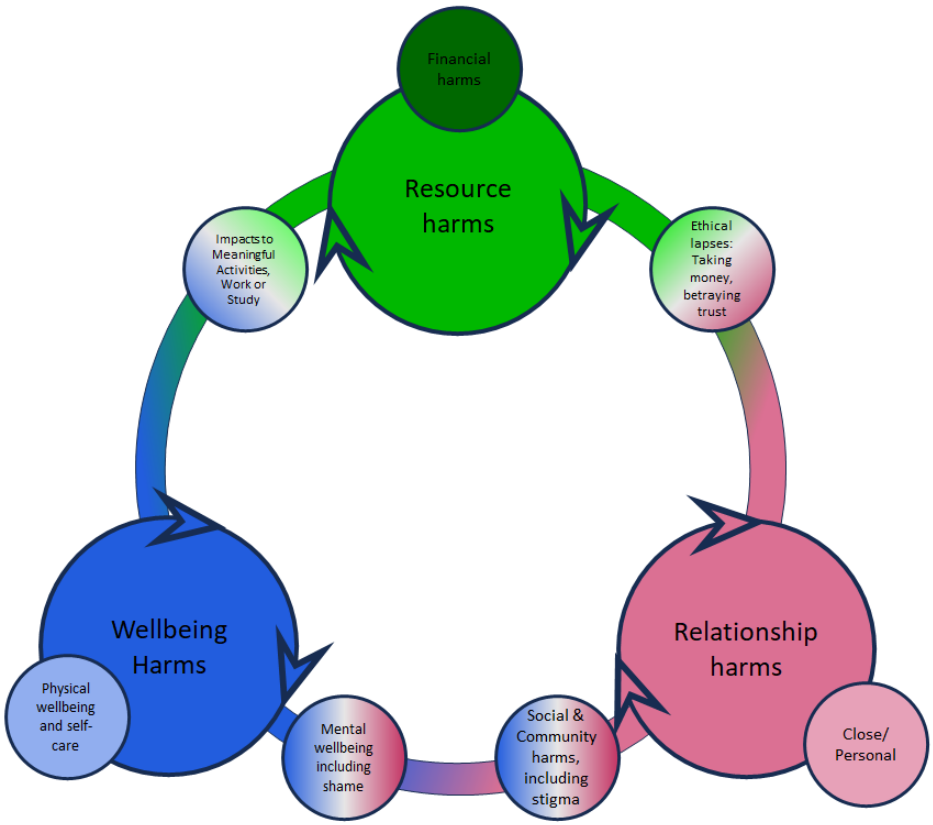


Figure 1. *Graphical representation of the Holistic Framework of Gambling Related Harm. The position of some harms indicates the intersecting nature of harms, with the arrows, connecting lines and transitioning colours indicating complex interactions, and that harms may span across multiple components, are fluid over time, and may have crisis, legacy and intergenerational impacts.*

Resource Harms

Our literature review highlighted financial, occupational, and criminal harms as key components of gambling-related resource harms. Financial harms encompass debt, loss of financial independence, and reduced quality of life, often prompting reliance on others and triggering associated shame[26,28,42]. Women, in particular, may experience diminished autonomy, increased shame due to social expectations around caregiver roles, and exacerbated relational strain[25,27]. Work-related harms include job loss as a result of gambling harms, diminished productivity, and constrained future prospects, with some individuals gambling during work hours or stealing from employers[26,42]. Migrant communities and minoritised groups may be especially vulnerable due to informal employment or barriers to credit, increasing risk of high-interest borrowing and financial exploitation[43,44,76]. In some cases, resource depletion extends to criminal activity, where theft fraud, other criminal activities are undertaken to sustain gambling or manage debts [27,28].

Our qualitative interviews affirmed the centrality of financial harm, with participants often describing it as the “first order” or “gateway” harm – one that rapidly cascaded into relational and psychological domains. Work and study-related harms were understood not only in economic terms, but also in relation to lost identity, purpose, and future orientation – indicating that resource loss also erodes wellbeing. Participants also described ethical transgressions – such as misusing joint accounts or lying about finances—that did not overtly meet legal thresholds for crime but were deeply consequential. Similarly, crimes – such as stealing (termed ’taking money without asking’) – were not always conceptualised as crimes unless police were specifically involved, and it was rare for participants to think a ‘crime’ domain of harm was relevant to them; the label ‘crime’ did not resonate. To reflect this ethical and relational complexity, and to frame this component in the way it was understood, the term

"ethical lapses" was adopted in our finalised framework, thus capturing ambiguous harms that impacted others and strained trust. This terminology is a more nuanced interpretation of resource-related consequences, sitting between individual resource depletion and interpersonal disruption.

Wellbeing Harms

The literature identifies a range of harms to health stemming from gambling, including both mental and physical impacts. Financial distress from gambling was strongly associated with depression, anxiety, and suicidality[26,42,45]. Emotional impacts such as low self-worth, low self-esteem, and chronic stress were also commonly reported[26,42,76]. Shame and stigma were particularly prominent among vulnerable subgroups, including minority communities, who feared career repercussions and perceived gambling-related losses as moral failings[76] or capability failings in military personnel[77]. Physical health harms were also described, including loss of sleep, poor diet[42] and health impacts[27]. Some accounts additionally noted co-occurring drug use as both a coping mechanism (e.g. for underlying mental health issues) and a compounding factor[45].

Qualitative interviews reaffirmed the centrality of psychological and emotional harm, but participants described the impacts as more akin to overall "wellbeing" than the stricter definition of "health", reflecting a more inclusive description of their lived experiences. Mental wellbeing harms were closely linked to feelings of shame and self-stigma, often manifesting in social withdrawal or disengagement from family life. Participants described wellbeing deterioration not only because of gambling, but also as a precursor – underscoring its bidirectional nature. Physical wellbeing concerns included sleep disruption, irregular eating, reduced exercise, and declining personal care. Several participants also raised emotional or spiritual dimensions, including identity loss and disconnection from meaning, purpose, or faith. These perspectives informed the reframing of this domain from "Health" to "Wellbeing" in the updated framework, allowing for a more holistic, culturally sensitive, and inclusive account of harms experienced.

Relationship Harms

The literature highlights the broad relational harms that can result from gambling, including marital breakdown, emotional neglect, family conflict, and community exclusion. Gambling-related harm has been shown to affect intimate partners, children, extended family, and broader social networks[28,42,46]. Among affected others, experiences of divorce, abusive behaviour, and emotional withdrawal were commonly reported, often underpinned by financial strain[25] or secrecy[47]. Stigma was a recurring theme: many families avoided discussing gambling, with some children reporting that it became a hidden or taboo issue that undermined communication and trust[27,45]. Cultural context also influenced how harms were experienced and responded to – particularly in some minority ethnic communities, where gambling may be more heavily stigmatised, compounding feelings of isolation and reducing access to familial and community support[28,46,76].

In the qualitative interviews, relationship harms emerged as among the most emotionally salient, especially those involving partners, parents, or immediate family. Participants described relational breakdowns marked by betrayal, secrecy, and loss of trust – which was often perceived as more damaging than financial consequences. "Community" and "Social" domains were often interpreted interchangeably and differently by participants, prompting the reframing of these into a unified "social and community" category to better reflect how participants experienced and described these relational ecosystems. This reconceptualisation draws on the concept of the mesosystem[78], acknowledging how harms ripple through overlapping relational networks. Shame and secrecy were consistently woven throughout participants' accounts and were often the mechanisms through which relationships deteriorated. As a result, these dynamics were treated not as secondary or diffuse outcomes but embedded directly within the revised relational domain of the framework.

The interplay between harms, the role of stigma and shame, and dimensions of difference.
The qualitative interviews revealed that gambling harms are rarely experienced in isolation, but rather as interwoven and compounding. Financial, relational, and wellbeing harms were closely linked, often culminating in severe consequences such as unsustainable debt, loss of accommodation, fractured relationships, and deteriorating mental health, all underpinned by shame and stigma.

Stigma, and its complex inter-relationship to gambling harms was not adequately captured by existing frameworks, where stigma itself operated on multiple levels. It could operate externally, within specific cultural, occupational, or faith-based settings, and internally, through impacts like guilt and low self-worth. Consistent with wider evidence on gambling-related stigma[48–51], these processes functioned not merely as emotional responses but as barriers to disclosure, help-seeking and engagement with support. Affected others also experienced associative stigma, further compounding relational harms. Harms often intersected with other life challenges, including substance use or difficult life events, with gambling sometimes serving as a maladaptive escape and coping mechanism from trauma, difficult life events (often pre-existing relationship issues) and/or other harms (notably alcohol use).

These complexities were further shaped by "dimensions of difference" [75] – such as ethnicity, sexuality, faith, and social environment – which influenced how harms were perceived, experienced, and managed, highlighting the need for a framework that attends to both structural and cultural contexts. These 'dimensions of difference' are captured in the final column of Table 3 and 4 in our preprint paper: https://osf.io/preprints/psyarxiv/yudq6_v1.

Experiences of Recovery
See Figure 1.2 for an overview of our recovery framework. Overall, while the *idea* of recovery resonated with both people who gambled and affected others – particularly as a way to frame positive change – the *term* itself was met with mixed feelings. Affected others often felt it did not apply to them, while some individuals who gambled saw it as overly medicalised. Nonetheless, the core recovery domains of resources, wellbeing, and relationships were seen as strongly interlinked.

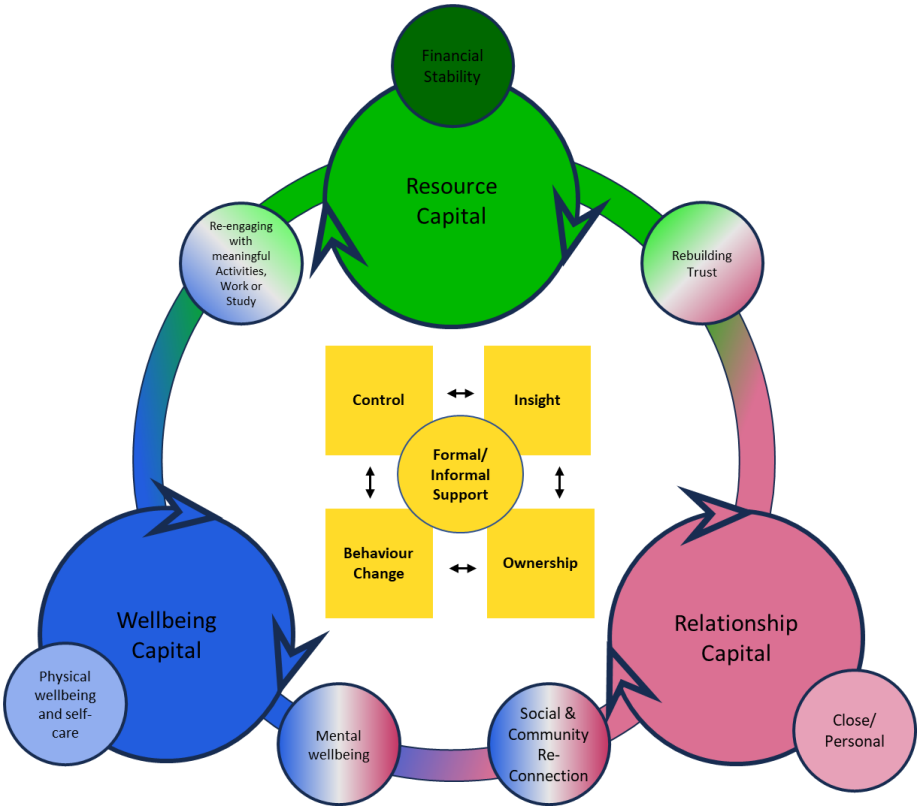


Figure 2. *Graphical representation of the Holistic Framework of Gambling Recovery. The framework is focused on the positive steps made to establish recovery and long-term resilience, where the central (yellow) 'mechanisms' domain encapsulates the cognitive and structural changes necessary for recovery.*

Resources

Recovery in the resource domain was associated with regaining financial stability – typically through stopping or reducing gambling and establishing strategies to address debt. Improvements in finances positively affected both daily living standards and personal relationships. Reconnecting with meaningful activities such as work, study, or hobbies also provided purpose and distraction, which contributed to enhanced wellbeing and reduced gambling urges.

Wellbeing

Improvements in physical wellbeing were linked to better mental health, though many participants acknowledged that mental health challenges often persisted for long periods. Affected others noted that their own wellbeing was tightly connected to the behaviour and circumstances of the person who gambled.

Relationships

Rebuilding trust and openness was critical in restoring damaged relationships. People who gambled were expected to acknowledge and disclose their gambling behaviours as a foundation for repair. However, trust remained fragile, with openness also serving as a monitoring function for affected others. In some cases, maintaining physical and/or emotional distance (or complete estrangement) from the person who gambled was necessary for affected others to protect their own wellbeing.

Managing or mitigating harms from gambling

Participants described the four conceptual components of recovery - *control*, *insight*, *behaviour change*, and *ownership* – as deeply interconnected. Affected others played roles across these areas. *Control* involved

managing environments, routines, and triggers through strategies such as engaging in alternative activities, avoiding high-risk settings, and structured planning. *Insight* came from realisations prompted by life events, personal reflection, or feedback from others, helping participants understand the harms and their underlying causes. *Behaviour change* was the observable implementation of control, often supported by treatment, changes in social networks, or shifts in identity. *Ownership* emerged through these processes, encompassing personal accountability, renewed confidence, future orientation, and a sense of reconnection with oneself.

Finally, *Support* was widely perceived as a further component integral to recovery. Participants described both formal and informal support – ranging from counselling, peer groups, and recovery services to encouragement and accountability provided by friends and family – as essential to initiating and sustaining recovery.

1.5 Limitations and future work

Efforts were made in the qualitative interviews to ensure that diverse communities were meaningfully represented. Further qualitative research is needed to deepen representation of underserved populations, including (for example) younger adults, neurodivergent individuals, and those with limited digital access.

Given the limited literature specifically addressing recovery from gambling harm, the study also drew upon the more developed literature on recovery from substance related harms. While there is some conceptual and experiential overlap between harmful gambling and substance use, there are also important differences in how these behaviours manifest, and how recovery can be supported. Future work should refine this framework, building on new evidence and engaging with the unique characteristics of gambling harm.

Whereas the alcohol and drugs sector has produced more robust recovery indicators and metrics, equivalent instruments for gambling are limited. Further work should aim to validate measures that track change across the domains of resource, relationship, and wellbeing capital, enabling the framework to be used in evaluation, policy, and service settings.

1.6 Conclusion

This first phase of work set out to build a new, empirically grounded framework of gambling-related harm and recovery for Great Britain. Existing frameworks, while useful, tended to treat harms as separate problems, overlook recovery, and did not include lived experience in the GB context. Our findings confirmed that gambling harms are deeply interconnected: financial strain, relationship breakdown, and declining wellbeing often spiral together, with stigma and secrecy amplifying their effects. These harms rarely exist in isolation and are shaped by wider social and cultural factors, including income, identity, and access to support.

The final **Holistic Framework of Gambling Harms and Recovery** reframes harm across three interlinked domains – **resources, relationships, and wellbeing** – and recognises that recovery depends on rebuilding "capital" across these same areas. This includes the social and emotional resources people draw on to regain stability, purpose, and connection. Importantly, the framework also centres affected others, whose experiences and recovery needs are often overlooked, and embeds non-stigmatising, person-centred language throughout.

In contrast to older deficit models focused on "problem gamblers", this framework positions harm and recovery within broader public health and social contexts. It aligns with NICE and WHO definitions of health as encompassing physical, mental, and social wellbeing)[79,80], and provides a foundation for person-centred policy, prevention, and care.

Together, these insights point to the need for better ways of measuring gambling-related harm – tools that reflect lived experience, capture the full range of actual impact, and can be used across clinical and population settings. Chapter 2 therefore moves from conceptual development to measurement, detailing the creation and validation of two new tools: the **Gambling Harms Severity Index (GHSI-10)** and the **GHSI-AO-10** for affected others.

2. Development and Validation of the Gambling Harms Severity Index (GHSI-10) and the GHSI for Affected Others (GHSI-AO-10)

Chapter 2 takes the conceptual work established in Chapter 1 and turns it into measurement. Chapter 1 showed that gambling-related harms in Great Britain are multi-component, relational, and often shaped by wider social contexts – including impacts on affected others. To act on this evidence in research, policy and services, harms must be measured in ways that are accurate, sensitive and acceptable to those with lived experience.

This chapter therefore describes the co-development and validation of two new instruments: the Gambling Harms Severity Index (GHSI-10) for people who gamble, and the GHSI-AO-10 for affected others. We outline how items were generated and refined through iterative co-design, and how both measures were psychometrically evaluated using complementary methods, providing evidence that they capture a single, coherent construct of harm and can support monitoring, evaluation and intervention research.

A copy of the GHSI-10 and GHSI-AO-10 are provided in the Appendix, at the end of this document. Other versions are available at gamblingharms.org

2.1 Background to the research

Gambling-related harm is increasingly recognised as a significant public health issue that extends far beyond individual behaviour or financial loss. As established in Chapter 1, the impacts can ripple through families, workplaces, and communities – affecting mental and physical health, relationships, and access to essential resources

Yet, for many years, research and policy responses were framed almost exclusively through the lens of individual "problem gambling." This diagnostic approach treated gambling as a personal pathology rather than a complex social and public health concern. The tools that emerged from this paradigm – most notably the Problem Gambling Severity Index (PGSI) – were designed[6] to identify "problem gamblers," not to measure the breadth and severity of harms experienced across the population. Gambling problems were largely perceived as an individual problem to be treated with clinical solutions, equivalent to the conceptualisation of a biomedical disease[4,5].

However, recent commentary has argued[4,8–11] that such tools are outdated, and are not readily aligned with public health and harm reduction strategies that are aimed at changing behaviours across the population[4,8–11]. It is also becoming recognised that the entrenched use of such 'problem gambler' language (which is standard terminology in research, public health, and non-governmental organisations) unwittingly places blame directly on individuals. It may thereby contribute to the stigmatisation and exacerbation of gambling harms[7] – and, by placing the onus on individual responsibility, it may divert attention away from other determinants of harm, such as corporate and institutional responsibilities[81–84].

Tools such as the PGSI were also developed several decades ago[2], with methods that did not adhere to modern protocols for aspects such as lived experience input; now considered an essential element for the development of self-report measurement tools[85,86]. Moreover, they lack any robust underlying theoretical frameworks of harm. Such shortcomings are not unique to the PGSI. In fact, similar issues are now being recognised with other historic (but entrenched) measurement instruments across various disciplines[87–93].

When concepts shift, measurement approaches need updating. By building future measurements upon our robust and comprehensive conceptualisations of harm in the GB context – involving extensive lived experience input, see Chapter 1 – the measurement of gambling harms can be meaningfully integrated alongside broad-based public health approaches.

2.2 Research aims

Our aim was to develop new instruments that are comprehensive and grounded in lived experience, and which act to operationalise our holistic framework of harm (Chapter 1), where each question reflects a specific harm component, and the index as a whole provides a nuanced profile of an individual's experience. Existing screening tools such as the PGSI were designed primarily to identify *risk of gambling problems* or symptoms associated with *diagnostic classifications*, rather than to measure the *actual consequences* that individuals experience. These constructs – risk, diagnosis, and harm – are related but meaningfully distinct. A person can face significant financial, relational, or psychological harms even when they do not meet clinical criteria for a gambling disorder, while others may present elevated risk scores in the absence of tangible harm. By focusing squarely on *realised harms*, the GHSI aligns with public-health objectives and enables more accurate monitoring of gambling's social burden across the population. Whilst other harms-focused measures are available[94], the GHSI represents the only GB-focused, co-developed instrument, aiming to capture a broad range and severity of harms – and thus contrasting with the checklist-based approach of some other instruments.

We aim to develop two instruments:

GHSI-10: The Gambling Harms Severity Index, for people who gamble

GHSI-AO-10: The GHSI for Affected Others

[2]It is worth noting that the definition of 'Problem Gambler' as a PGSI score of 8+ has remained unchanged and rarely challenged ever since the original publication of Ferris and Wynn, published over two decades ago.

Our approach involved a strong emphasis on co-designed content development, where such ethical and empirical fundamentals are now incorporated into various guidelines[85,86]. We therefore developed the GHSI-10 and GHSI-AO-10 through an inclusive, person-centred iterative process, involving participatory co-development and refinement of items: not just with people with lived experience of harm from their own gambling, but also affected others, clinicians and counsellors. Moreover, we combined robust content development with current best practice in psychometric evaluation. Here, Rasch Measurement Theory (RMT) and the related Item Response Theory (IRT) have become increasingly utilised in the development and evaluation of measurement instruments, underscored by inclusion in updated development guidelines[86,95].

Both measures are co-designed to be used in various contexts, including research purposes such as cross-sectional and longitudinal surveys to understand public health impacts of gambling harms in the general population, alongside service delivery such as triage to appropriate support services, and monitoring of treatment effects.

Whilst this report contains a lay-friendly summary of these findings, a complementary and distinct 'pre-print' academic publication is also available: https://osf.io/w8fb6_v1

2.3 Lay summary of methods

Developing the questions

We developed the questions (or "items") using a series of iterative codesign workshops (5 workshops in total). These workshops involved people with lived experience (*N* = 20), affected others (N = 6) and service delivery experts (*N* = 20). All participants gave informed consent. Service provider workshops contained participants who delivered treatment and support, were active peer support or treatment providers, worked in residential care, or were medical practitioners with knowledge of gambling harms. Workshops involved a series of co-design activities. Early-stage workshops involved investigating strengths and weaknesses of pre-existing instruments (e.g. PGSI, etc.), along with preferences for aspects such as style of item response codes and recall period. Later workshops involved refinement of items, where included activities to the refine precise wording, and confirm clarity, understanding and interpretation of each item.

Validation sample

Prior to running the validation survey on the GHSI and GHSI-AO, we first needed to identify two pools of participants: a pool of people who gamble, and a pool of those that were close to someone who gambles. These pools would include both harmed and unharmed participants. We therefore conducted a pre-screening (*N* = 7,568) on the survey distribution platform Prolific.com[96]. All participants were from Great Britain and paid for their time in line with platform standards and local university guidelines (i.e. greater than fair living wage). While Prolific is considered among the more reliable online platforms[97,98] such samples can present challenges of representativeness, inattentive responding, and demand effects[99]. Therefore, we employed multiple, robust attention checks[100–102] (i.e. built-in questions used to confirm participants are reading and answering carefully, so inattentive or random responses can be removed).

The final survey sample was 4,519 participants, comprising 2,365 people who gamble and 2,154 affected others. See Table 2.1 for a demographic summary of the sample used for validation.

***Table 2.1**: Demographics of Validation Survey*

Characteristic	Population		
	Overall	**Affected Others**	**People who Gamble**
	N = 4,519[1]	N = 2,154[1]	N = 2,365[1]
Harm Score	2.7 (5.1)	2.4 (4.8)	3.0 (5.3)
Gender			
Woman (including Trans Female/Trans Woman)	2,289 (51%)	1,138 (53%)	1,151 (49%)
Man (including Trans Male/Trans Man)	2,168 (48%)	985 (46%)	1,183 (50%)
Non-binary (or Other not listed)	43 (1.0%)	22 (1.0%)	21 (0.9%)
Rather not say	19 (0.4%)	9 (0.4%)	10 (0.4%)
Age (numeric)	40 (12)	39 (12)	40 (12)
Nationality			
England	3,882 (86%)	1,848 (86%)	2,034 (86%)
Scotland	432 (9.6%)	210 (9.8%)	222 (9.4%)
Wales	203 (4.5%)	95 (4.4%)	108 (4.6%)
Unknown	2	1	1
Ethnicity			
English, Welsh, Scottish, Northern Irish or British	3,964 (88%)	1,878 (87%)	2,086 (88%)
Irish	14 (0.3%)	7 (0.3%)	7 (0.3%)
Gypsy or Irish Traveller	0 (0%)	0 (0%)	0 (0%)
Any other White background	43 (1.0%)	21 (1.0%)	22 (0.9%)
White and Black Caribbean	57 (1.3%)	29 (1.3%)	28 (1.2%)
White and Black African	8 (0.2%)	4 (0.2%)	4 (0.2%)
White and Asian	43 (1.0%)	20 (0.9%)	23 (1.0%)
Any other mixed or multiple ethnic background	18 (0.4%)	7 (0.3%)	11 (0.5%)
Indian	64 (1.4%)	33 (1.5%)	31 (1.3%)
Pakistani	38 (0.8%)	18 (0.8%)	20 (0.8%)
Bangladeshi	12 (0.3%)	7 (0.3%)	5 (0.2%)
Chinese	53 (1.2%)	27 (1.3%)	26 (1.1%)
Any other Asian background	19 (0.4%)	9 (0.4%)	10 (0.4%)
African	71 (1.6%)	36 (1.7%)	35 (1.5%)
Caribbean	66 (1.5%)	33 (1.5%)	33 (1.4%)
Any other Black, African or Caribbean background	8 (0.2%)	4 (0.2%)	4 (0.2%)
Arab	4 (<0.1%)	2 (<0.1%)	2 (<0.1%)
Any other ethnic group	14 (0.3%)	6 (0.3%)	8 (0.3%)
Prefer not to say	23 (0.5%)	13 (0.6%)	10 (0.4%)
Highest education level			
No formal qualifications	35 (0.8%)	18 (0.8%)	17 (0.7%)
Secondary education (e.g. GED/GCSE)	595 (13%)	282 (13%)	313 (13%)
High school diploma/A-levels	787 (17%)	384 (18%)	403 (17%)
Technical/community college	535 (12%)	249 (12%)	286 (12%)
Undergraduate degree (BA/BSc/other)	1,754 (39%)	830 (39%)	924 (39%)
Graduate degree (MA/MSc/MPhil/other)	732 (16%)	352 (16%)	380 (16%)
Doctorate degree (PhD/other)	72 (1.6%)	34 (1.6%)	38 (1.6%)
Don't know / not applicable	8 (0.2%)	4 (0.2%)	4 (0.2%)

Unknown	1	1	0
Relationship status			
Single	945 (21%)	453 (21%)	492 (21%)
In a relationship	1,256 (28%)	608 (28%)	648 (27%)
Engaged	342 (7.6%)	168 (7.8%)	174 (7.4%)
Married	1,745 (39%)	819 (38%)	926 (39%)
Widowed	18 (0.4%)	7 (0.3%)	11 (0.5%)
Divorced	122 (2.7%)	57 (2.6%)	65 (2.7%)
Separated	47 (1.0%)	21 (1.0%)	26 (1.1%)
Never married	17 (0.4%)	7 (0.3%)	10 (0.4%)
Rather Not Say	10 (0.2%)	6 (0.3%)	4 (0.2%)
In a civil partnership/civil union or similar	17 (0.4%)	8 (0.4%)	9 (0.4%)
Sexual orientation			
Relationship to person who gambles			
Child	—	76 (3.5%)	—
Parent	—	225 (10%)	—
Sibling	—	203 (9.4%)	—
Partner	—	633 (29%)	—
Friend	—	688 (32%)	—
Family	—	175 (8.1%)	—
Other	—	154 (7.1%)	—
Affected Other by an Active Gambler			
Still Gambling	—	1,617 (75%)	—
No longer gambling	—	537 (25%)	—
Affected Other by someone in Formal Support			
Formal Support	—	108 (5.0%)	—
No formal support	—	2,046 (95%)	—
Affected Other by someone in Informal Support			
Informal Support	—	534 (25%)	—
No informal support	—	1,620 (75%)	—
–Affected Other – still in contact	—		
Still in contact	—	2,030 (94%)	—
No longer in contact	—	124 (5.8%)	—

[1]Mean (SD); n (%)

Note. N represents complete cases after exclusion.

Validation survey questions

We captured a variety of variables within the survey:

Demographic variables

Demographic variables likely to contribute to one's experience of gambling-related harms were captured, where selection was informed directly by existing literature that had previously pioneered the methods used here[103–105]. Our aim was to replicate, as closely as possible, this previous work. Variables included: age, gender, education, ethnicity, alcohol consumption (measured through AUDIT-C [106]), smoking history, illicit drug use, mental health challenges, and receiving disability benefits. See Table 2.1 for key demographic features of the sample.

Gaming/gambling related variables

- Gambling behaviour: captured through frequency, products, number of products, and amount wagered. The sample had a mean typical self-reported monthly spend of £106 (*SD* = £303).
- Gambling products listed were taken from the Gambling Survey for Great Britain (GSGB)[107] . The mean number of products engaged with was 4 (*SD* = 3).
- In affected others, current gambling status of the person close to them was recorded, as was that person's experience of recovery, and whether the affected other was still in contact with the person who gambles/gambled. See Table 2.1 for full summary of gambling variables.

Measurement Instruments

Alongside the GHSI-10 and GHSI-AO-10, several measures of gambling-related harm/problem gambling were presented to participants, as well as measures of health and wellbeing. These included:

- The Problem Gambling Severity Index (PGSI)[108]; a 9-item subscale of the Canadian Problem Gambling Index [108] that measures risk of harm as opposed to actual harm, scored using a frequency based response format.
- The Short Gambling Harms Screen (SGHS-10; also called the Gambling Harms Screen (GHS-10))[109] comprising 10 items (e.g. "Felt distressed about my gambling") and is binary Yes/No choice, producing a total score between 0 and 10; higher scores indicate greater experience of harm.
- For affected others, we included the Gambling Harms Screen for Affected Others (GHS10-AO), which is similar the GHS-10.
- The Gambling Commission's Gambling Related Harms measure (GCGRH-13). This comprises three items from the PGSI as well as 10 questions about one's experience of gambling-related harm. It has a varied response structure and is not intended to be used as a composite score.
- For affected others, we included The Gambling Commission's Gambling Related Harms for Significant Others (GCGRH-SO) comprises of nine questions about one's experience of another person's gambling, and the harm that the Significant Other has experienced. It has a varied response structure and is not intended to be used as a composite score.
- The ICEpop CAPability Measure for Adults (ICECAP-A)[110]. This is a 5-item measure of capability, assessing five conceptual attributes (Attachment, Stability, Achievement, Enjoyment, and Autonomy), which is recommended by NICE for measuring and valuing effects for non-health interventions[111]. Higher scores indicate greater capability. ICECAP-A is indexed for the UK, anchored on full capability and no capability.
- The Personal Wellbeing Index (PWI)[112]. This is a 7-item measure of subjective wellbeing. Items assess standard of living, health, and connections and are scored from 0 to 10, where 0 indicates no satisfaction and 10 indicates complete satisfaction.

- The Warwick-Edinburgh Mental Well-being Scale (WEMWBS). This is a 14-item measure of mental wellbeing[113], assessing mental wellbeing as both "feeling good and functioning well". Items assess mental wellbeing holistically (e.g. "I've been feeling good about myself") and are scored from 1 – 5 (none of the time, rarely, some of time, often, all of them time), where higher scores indicate greater mental wellbeing.
- The Short-Form Six-Dimension health index (SF-6D). This is a 6-item measure designed explicitly for calculating Quality Adjusted Life Years (QALYs)[114]. Items are proprietary and cannot be reported or shared.

Statistical Analyses

GHSI-10 and GHSI-AO-10 were assessed for validity through both classical test theory (CTT) methods and Rasch Measurement Theory (RMT) methods. Here, CTT methods tend to involve more commonly known methods for assessing scale validity, such as:

- Cronbach's alpha: a measure of internal consistency, which shows how closely related the items in a scale are as indicators of the same underlying construct.
- Confirmatory factor analysis (CFA) – which assesses. "unidimensionality", ensuring that all items in a scale measure a single underlying concept, making total scores meaningful and valid for interpretation and comparison.
- "Convergent validity" – the degree to which a measure correlates with other measures that assess the same or closely related constructs, supporting that it is measuring what it intends to. In this case, we compared GHSI to PGSI, gambling spend, and number of products engaged with.

In contrast, RMT provides a model of the relationship between a person's level on a "latent" trait (i.e. here, the severity of their gambling-related harm) and responses to the questions that measure it. Unlike traditional 'raw scores' (i.e. just adding up the responses in a scale), RMT calculates a respondent's trait level on a log-odds (logit) scale. These scores are better than raw scores because they provide **precise, interval** ability estimates. RMT assumes that some questions are "harder" (in our context, more "severe") than others, as in a maths test the hardest questions may be last, and answering these represents greater mathematical ability. The "harder" (or, again, in our context more "severe") questions in RMT represent a greater endorsement of the latent trait than "easier ones". RMT allows for **accurate cross-test comparisons and improved measurement at extreme ability levels**, thus enabling robust validation.

In the context of gambling-related harm measurement, RMT can illuminate whether questions and the derived scale adequately capture the spectrum of gambling-related harms, whether these align with contemporary public health priorities (i.e. including robust measurement of less-severe, low-level harms), and thereby whether it meets the requirements of service delivery and national monitoring. For RMT Analyses, we used the software WinSteps[115].

2.4 Results

Item Codesign Process

The codesign workshops fundamentally drove the philosophical design decisions of the GHSI-10 and GHSI-AO-10, such that the tool reflects the experiences and language of those experiencing harm (both directly and affected others), whilst also being deemed as having utility for service delivery contexts.

Early-stage co-design workshops highlighted a preference for a "domain general" approach (i.e. where each question covers a domain of harm, across various levels of harm), rather than a longer-form "checklist". This was deemed a more appropriate and efficient manner of capturing a broad spectrum of gambling harms. These workshops also had a strong agreement for a 3-month recall period, which was deemed the most appropriate for capturing changes in gambling harms, alongside a recognition that to document changes over time, items need to avoid harms that cannot be reversed/changed (e.g. divorce, bankruptcy), and instead focus on those that are dynamic and responsive to recovery pathways (e.g. mental wellbeing; financial stability).

Early workshops also identified the need for destigmatising language (as also previously recommended[116]), alongside a 'normalising statement' (e.g. "that many people face challenges with gambling"). This has been previously recommended by NICE guidelines for gambling harms[79].

Participants with lived experience repeatedly raised concerns when discussing various instruments, such as the PGSI, around issues of denial and social desirability biases, arguing that *"PGSI makes it easy enough for me to lie*" and "*I didn't want to admit to myself how bad my gambling was".* We therefore co-developed GHSI-10 and GHSI-AO-10 to reduce such biases, drawing a combination of lived experience input and best-practice recommendations from psychological and measurement-related literature.

Such literature recommends: neutral instructions that emphasise the purpose is to understand harms rather than to label/judge the respondent, alongside non-judgmental wording, avoiding loaded or leading language that might signal a "correct" or more acceptable answer. Questions were therefore crafted to sound as neutral as possible[117,118], alongside framing questions to inquire about impacts on discrete consequences, as opposed to directly asking about "problems", "addictions" or personal failings, where such an indirect approach can elicit more honest responses[119,120].

Finally, the items were tested with cognitive approaches lived experience workshops, to ensure that finalised wording did not trigger denial or defensive responses[117,121,122]. Examples of how such changes were framed with the GHSI include removal of direct causality, shifting the wording from "*how often has gambling led to issues with*…" into "*after gambling, how often have you noticed changes in your...* "; removing extreme wording in response categories (e.g. "always"), which can push respondents to the least stigmatised option[123]; removing wording that might trigger defensiveness, where "honest behaviour" was rephrased to the more neutral "gambling secrecy", to ensure that finalised wording did not trigger denial or defensive responses[117,121,122].

In the final stage of co-development workshops, lived experience participants that were naïve to GHSI-10 and GHSI-AO-10 (i.e. had not seen earlier iterations) stated that the new instrument was a "*more caring approach with genuine concern and warmth.*"

Statistical analyses

We tested both the GHSI and GHSI-AO using two different but complement**a**ry approaches**:** Classical Test Theory (CTT) and Rasch Measurement Theory (RMT). Below, we provide a brief lay summary, where full technical details are beyond the scope of this document. For full results see: https://osf.io/w8fb6_v1.

GHSI-10 (for people who gamble)

Overall performance: Analyses supported that all ten questions worked together to measure a single underlying idea – gambling-related harm. This is important because it means the overall score provides a clear and meaningful summary of a person's experience.

Reliability: The scale showed excellent internal consistency, meaning the questions were highly consistent with each other (Cronbach's alpha = 0.94). Although a figure this high may suggest some redundancy between items, this is justifiable given the focus on a narrow construct, potential clinical screening contexts (i.e. where a full picture of harms is warranted), and the intentional conceptual, harm-focussed overlap among items. Moreover, alpha does not improve should any items be removed, indicating all items contributed to the scale without redundancy.

Convergent validity: Scores on the GHSI-10 closely matched other indicators of gambling severity and wellbeing in the expected directions (see Table 2.2). People with higher harm scores also tended to have:

- Higher scores on the PGSI and other harm-based measurement instruments (SGHS, GCGRH-13) (strong positive link).
- Lower wellbeing and quality-of-life scores (moderate negative link) on the ICECAP-A, PWI, WEMWBS and SF-6D.
- Higher gambling spend and product use (moderate positive link).

Overall, this establishes the GHSI-10 is capturing the right construct – harm – rather than unrelated traits like mood or risk-taking.

***Table 2.2**. Correlation matrix of measures of harm and measures of wellbeing. * indicates p < .05. ** indicates p < .01.*

Variable	*N*	*Mean*	*(SD)*	1	2	3	4	5	6
1. GHSI-10 Total	2365	3.00	5.31						
2. PGSI Total	2365	2.92	4.55	.84** *p* < .001					
3. SGHS Total	2365	2.04	2.87	.76** *p* < .001	.84** *p* < .001				
4. ICECAP-A Total	2365	15.29	3.19	-.41** *p* < .001	-.38** *p* < .001	-.38** *p* < .001			
5. PWI Total	2365	44.60	13.35	-.38** *p* < .001	-.34** *p* < .001	-.34** *p* < .001	.80** *p* < .001		
6. WEMWBS Total	2365	46.69	10.25	-.37** *p* < .001	-.34** *p* < .001	-.34** *p* < .001	.80** *p* < .001	.81** *p* < .001	
7. SF-6D Total	2365	12.32	4.71	.36** *p* < .001	.32** *p* < .001	.31** *p* < .001	-.61** *p* < .001	-.63** *p* < .001	-.62** *p* < .001

Rasch analysis:

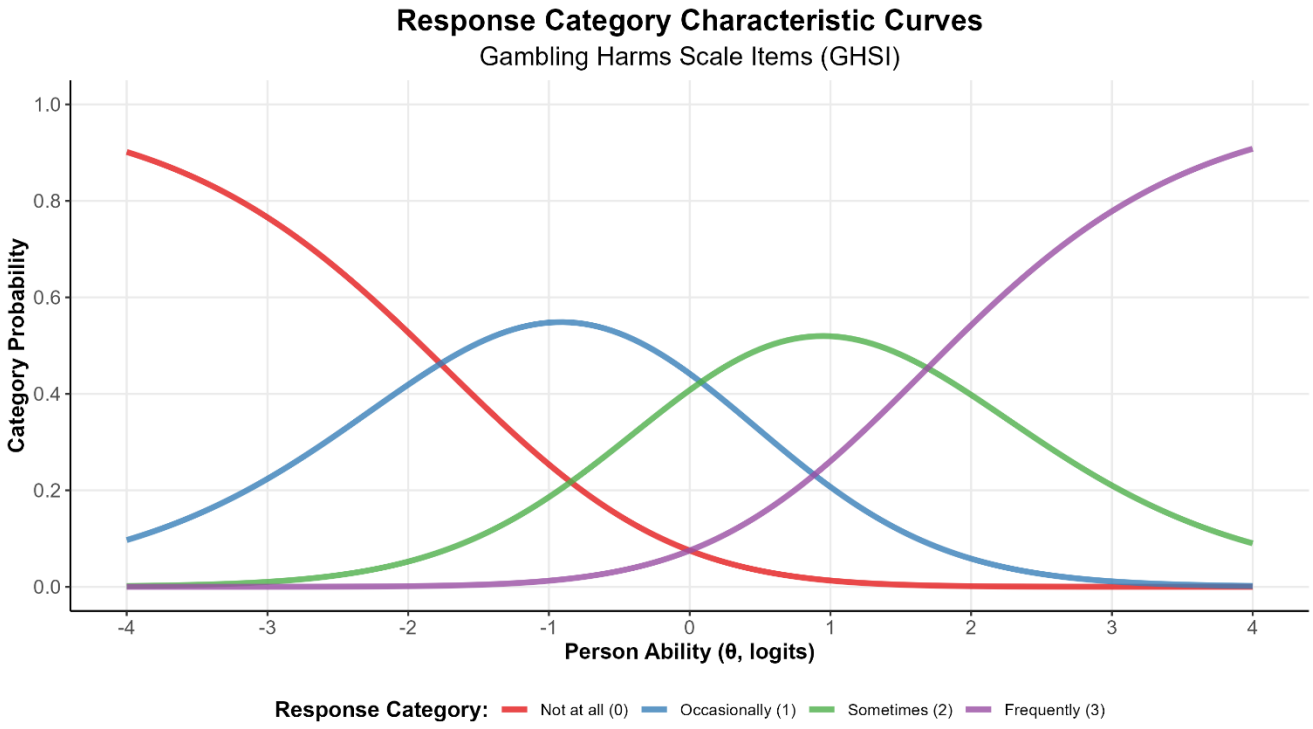
When tested using RMT, the GHSI-10 met all the expected standards for a well-functioning measurement tool. The questions performed in an orderly way, meaning that higher responses genuinely represented greater harm. This can be seen in Table 2.3, which lists the items according to their "severity" of harm – and where it can be seen that the items progress in a rational order from low harm items (e.g. mood and feelings; secrecy) to high harm items (e.g. relationship stability, mental health and safety). All ten items fitted well within the expected range. The model confirmed that the GHSI-10 measures a single concept of harm to the individual who gambles. Furthermore, the item response categories – carefully refined during the co-development process – exhibited rational ordering and a "textbook" psychometric performance. See Figure 2.1.

Furthermore, items were spread across an appropriate range of severity, from milder harms (e.g., feelings of secrecy or strain on wellbeing) to more severe consequences (e.g., serious financial or relationship harms). There was no bias by gender, and only minor differences by age and income for one or two items, establishing that the tool works similarly across different groups.

Table 2.3: Question Statistics for GHSI-10 and GHSI-AO-10. Item Location (or Severity) indicates the level of harm of a question on a "logit" (log odds) scale, where higher numbers indicate higher levels of harm. Endorsement Frequency refers to the percentage of responses that affirm some experience of the harm regardless of level. Infit and Outfit MNSQ are quality checks that flag unexpected or inconsistent responses in a questionnaire. Infit catches unusual patterns in expected areas, while Outfit spots odd answers to very easy or very hard question. MNSQ values of between 0.7-1.4 (as seen with our items below) are considered acceptable (see our preprint for details of psychometric criteria; https://osf.io/preprints/psyarxiv/w8fb6_v1).

Scale	Item Wording	Item Location (or Severity)	Endorsement Frequency (>1)	Infit (MNSQ)	Outfit (MNSQ)
GHSI-10	…Mood and feelings. Such as feeling down, stressed, shameful or anxious.	-1.31	37%	0.82	0.90
	…Physical wellbeing. Such as eating poorly, losing sleep or being less physically active.	0.01	19%	0.98	0.84
	...Day to day finances. Such as issues with paying bills, borrowing money or using up savings.	-0.58	24%	1.08	1.04
	…Hobbies, work and study. Such as losing focus, getting things wrong or missing work.	-0.19	22%	1.00	0.96
	…Family and loved ones. Such as tensions or being less involved with loved ones.	0.04	20%	0.91	0.95
	…Social life and community connection. Such as feeling judged, stigmatised, lonely or cut off.	0.29	18%	0.94	0.88
	…Secrecy. Such as hiding losses from loved ones or borrowing money without asking.	-0.71	27%	1.25	1.20
	…Significant financial worries. Such as feeling at risk of losing your home or worrying about large debts you can't pay.	0.48	13%	1.11	0.78
	…Mental health and safety. Such as thinking about ending your life or hurting yourself.	1.02	11%	1.25	0.85
	...Relationship stability. Such as	0.95	13%	1.09	0.81

	talks of relationship breakdown or actual relationship breakdown with family, partners or close friends.				
GHSI-AO-10	…Mood and feelings. Such as feeling down, stressed, angry or anxious.	-1.27	28%	0.90	1.01
	…Physical wellbeing. Such as eating poorly, losing sleep or being less active.	0.39	14%	1.07	0.92
	...Finances. Such as issues with paying bills, borrowing money, using up savings, or unexpected shortfalls.	-0.17	18%	1.02	1.03
	…Hobbies, work and study. Such as losing focus, getting things wrong or missing work.	0.34	15%	0.93	0.90
	…Family and loved ones. Such as tensions and emotional distance from the person gambling, or impacts on other family members like children.	-0.64	22%	1.04	1.04
	…Social life and community connection. Such as feeling judged, stigmatised, lonely or cut off.	0.36	14%	0.87	0.72
	… Lack of trust. Such as feeling like you are being lied to, or struggling to trust again.	-0.88	22%	1.12	1.07
	…Significant financial worries. Such as feeling at risk of losing your home, or worrying about large debts you can't pay.	0.65	11%	1.07	0.78
	…Mental health and safety. Such as thinking about ending your life, or hurting yourself.	1.06	10%	1.26	1.02
	...Relationship stability. Such as talks of relationship breakdown or actual relationship breakdown with family, partners or close friends.	0.16	16%	1.06	0.92



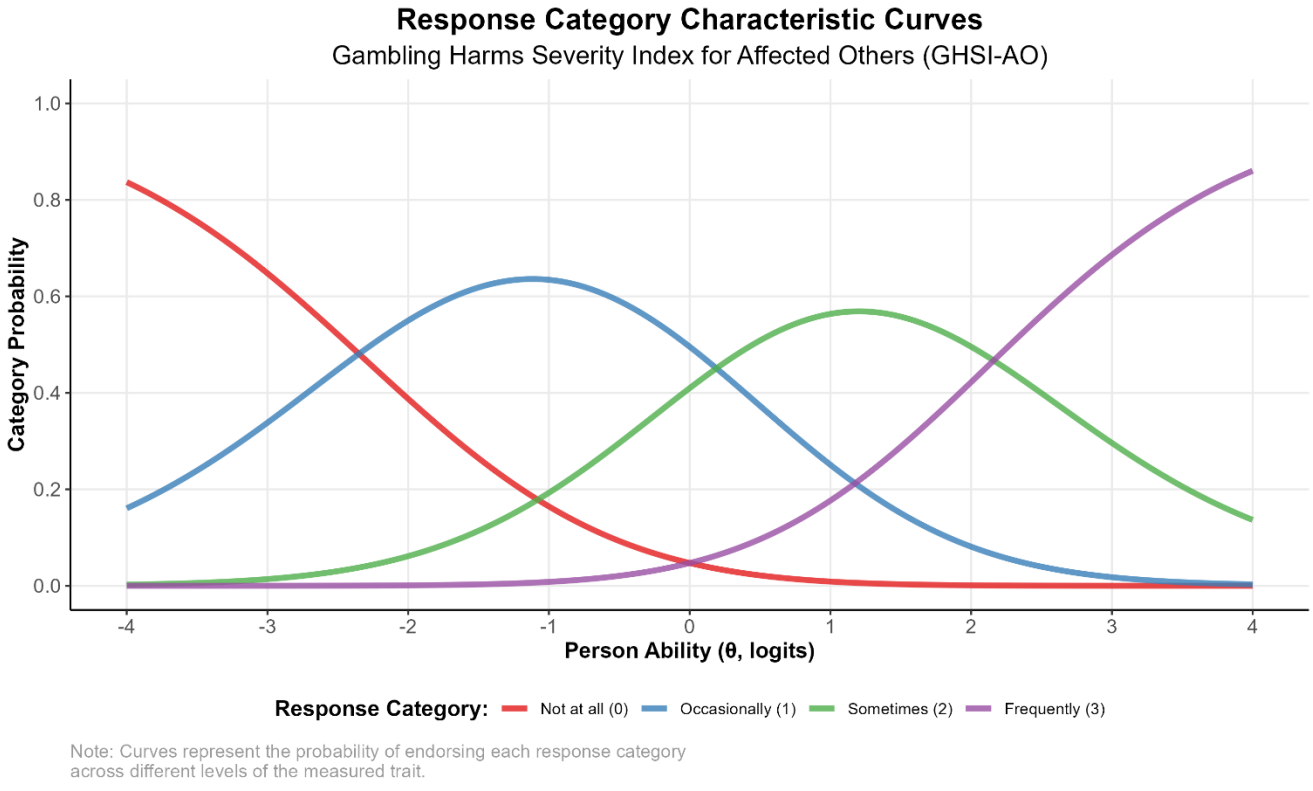


Figure 2.1. *Response Category Characteristic Curves for GHSI-10 and GHSI-AO-10. The curves show how likely someone is to choose each possible answer (like "never," "sometimes," "often") depending on their level of harm (i.e. from lowers harm at -4, to highest harm at +4; labelled as "Person Ability" under the graphs, due to the RMT-related paradigm), helping us see whether the response options are working as intended. If the curves overlap too much or don't follow a clear order, it*

suggests the response categories might be confusing or not meaningful. With the GHSI-10 and GHSI-AO-10, the curves are all logically ordered with distinct peaks, indicating that they are functioning as expected.

GHSI-AO-10 (for affected others)

Overall performance: The GHSI-AO-10, which measures harm experienced by people affected by someone else's gambling, also showed a strong one-factor structure, confirming that it captures a single concept of "harm to others."

Reliability: Again, internal consistency was excellent (Cronbach's alpha = 0.95). Although a figure this high may suggest some redundancy between items, this is justifiable given the GHSI-AO-10 focus on a narrow construct, potential clinical screening contexts (i.e. where a full picture of harms is warranted), and the intentional conceptual, harm-focussed overlap among items. Moreover, as emphasised above, alpha does not improve should any items be removed, indicating all items contributed to the scale without redundancy.

Convergent validity:

Higher scores on the GHSI-AO-10 were strongly associated with:

- Greater harm scores on other affected-others tools (GHS10-AO, GCGRH-SO) (strong positive link).
- Lower wellbeing and quality-of-life scores (moderate negative link) on the ICECAP-A, PWI, WEMWBS and SF-6D.
- Whether the person who gambles was still active (higher harm if still actively gambling).

Again, this pattern confirms that the scale behaves as expected.

Rasch analysis:

RMT also supported the robustness of the GHSI-AO-10. Items progressed in a logical order from lower to higher harms. See Table 2.2. Similarly, response categories were ordered in a rational way, see Figure 2.1. All items fitted within acceptable limits, and the overall structure was unidimensional. Minor differences were seen on one item between men and women (around serious mental health issues), but there was no systematic bias by age, ethnicity, education, or income.

Summary:

Both versions of the GHSI showed strong psychometric performance. They reliably measure a single, coherent construct of gambling-related harm, work consistently across demographic groups, and align well with existing measures of gambling severity and wellbeing. In short, they provide robust, population-ready tools for assessing harm among both people who gamble and those affected by someone else's gambling.

2.5 Discussion

The Gambling Harms Severity Index (GHSI-10) and its companion scale for affected others (GHSI-AO-10), were grounded in our 'Holistic Framework of Gambling Harms and Recovery'[124], and robustly co-developed with a range of stakeholders (lived experience, affected others, and treatment/service providers).

The resulting 10-item measures (see our preprint of psychometrics details: https://doi.org/10.31234/osf.io/w8fb6_v1) demonstrated strong psychometric properties across both CTT and RMT, offering a robust means of capturing gambling-related harm among those who gamble and those harmed by another's gambling in Great Britain. Results supported unidimensional measurement for both scales, with good convergence to existing benchmarks and divergence from measures of wellbeing, as recommended by NICE[111].

The findings highlight the value of GHSI-10 and GHSI-AO-10 as measures of *actual harm*, rather than *proxies* for harm (i.e. as with the PGSI, and other historic measurement approaches). This distinction is critical for both research and practice. In applied settings, the measures enable effective screening for treatment and support services, ensuring that those reporting tangible impacts are not overlooked. At population level, they facilitate more precise surveillance of gambling-related harm and improved estimation of economic and societal burden. These improvements to measurement are further facilitated by our co-developed (yet academically-grounded[117–120,122]) approach to reducing biases around denial and social desirability. Whilst other measures do exist for gambling harms (e.g. SGHS, DGHS-7), these are narrower in scope, did not involve such substantial co-development, and were not aligned with any nuances of the GB context. Finally, GHSI-AO-10 represents one of the first attempts to capture the harms that affected others experience *directly*, rather than through the proxy of the person who gambles.

The co-designed development process is a significant strength. Participatory methods were followed, with iterative stakeholder involvement to ensure clarity and use of non-stigmatising language. This is likely to promote honest responding, reduce bias, and increase relevance for research participants and clinical users. Moreover, it ensured coverage of the full spectrum of gambling-related harms – including health, relational, financial, and social domains. In this way, the GHSI provides a holistic, person-centred measure of gambling-related harm that reflects NICE's 'all-harms' approach (NG248)[79], OHID[125] and WHO[80] definitions of health as encompassing physical, mental, and social well-being, captures harms to affected others in line with UK policy recognising impacts on families and communities[79,126], aligns with NHS Patient Reported Outcome (PROM) practice in enabling individuals to self-report outcomes[127], and generates data compatible with NICE's cost-effectiveness frameworks[128].

2.6 Limitations and future work

The validation data came from an online panel (Prolific), which may not fully reflect the general population. Although we applied quality checks and removed poor-quality data, some bias may still remain.

For affected others, this is still a relatively new area of measurement, so there were fewer existing tools available for comparison. Even so, the GHSI-AO-10 showed clear links to other harm and wellbeing measures, suggesting it is measuring what it should be.

Also, these tools are focused on harm. They don't yet capture the flip side: positive change or recovery. This is an important direction for future work. We need follow-up studies to see if improvements in scores reflect real-life recovery, and whether new questions can be developed to capture growth, resilience, and recovery capital.

Finally, these measures were developed for Great Britain, using GB-based language and policy frameworks. While the core ideas are likely relevant in other countries, future work should check how well the tools translate across cultures and contexts.

2.7 Conclusion

By directly measuring harm – rather than risk of harm – the instruments provide a more accurate basis for identifying those in need, estimating population burden, and evaluating interventions. These measures also offer advantages over existing tools: they extend assessment to affected others, demonstrate clean response category functioning, and were validated in a large, well-powered sample. Looking ahead, GHSI-10 and GHSI-AO-10 can support longitudinal monitoring of harm trajectories and recovery and act as outcome measures in clinical pathways. By bridging psychometric rigour, co-production, and public health relevance, the GHSI-10 and GHSI-AO-10 represent a significant advance in the measurement of gambling-related harm. Final instruments and licensing details are available at https://gamblingharms.org

3. Benchmarking the GHSI against health utility and capability

3.1 Background to the research

Gambling harms as an impact to health utility

This chapter quantifies the impact of gambling-related harm on quality of life and capability, using the same health-economic methods routinely applied to other public-health conditions. Building on the holistic framework and harm measurement developed in Chapters 1 and 2, we model how increasing levels of gambling harm are associated with reductions in health utility and capability among people who gamble and affected others. By benchmarking gambling harms to established health-related quality-of-life metrics, this chapter provides the first GB-specific estimates of the health burden of gambling, enabling direct comparison with other long-term conditions and substance use related harms, and establishing a basis for cost-effectiveness and population-level impact assessment.

To do this, our survey of individuals who gamble, described in Chapter 2, incorporated standard, validated self-report measures of health-related quality of life (HRQoL), including the SF-6D and ICECAP-A (described in more detail below). These instruments enable the impacts of gambling harm to be expressed in health-economic terms, using the same evaluative frameworks that underpin National Institute for Health and Care Excellence (NICE) guidance on cost-effectiveness and service evaluation , are used for economic evaluation frameworks across the NHS, and are utilised in WHO burden-of-disease modelling for various long-term conditions, psychiatric conditions and substance use related harms[111,129,130]. By linking health conditions to HRQoL and "health utility", these tools provide a common language for comparing various diverse health states, and for establishing the extent to which an individual or population sits below "full health" or reduced capability.

Health Related Quality of Life (HRQoL) measures and Quality Adjusted Life Years.

When using HRQoL measures such as the SF-6D and ICECAP-A, a key outcome measure in health economics is the 'QALY': Quality Adjusted Life Years. These can be calculated through various approaches, where QALYs run from 0 to 1. A value of 1 is equivalent to a year spent in perfect health; a value of 0 is equivalent to death. Once calculated, these values can be used to inform health-related economic decision making. In England, for example, public health interventions costing less than £20,000-30,000 per QALY gained have a reasonable chance of being recommended by the NICE[131]. The use of such approaches has been recommended to understand gambling harms in the GB context[132], where it has been argued that "gambling harm is best understood as a decrement to health utility"[133].

Previous research on health utility from the Australian context

In Australia, following the development of the Langham framework of gambling harm (see Chapter 1), researchers estimated reductions in health-related quality of life associated with increasing levels of gambling

harm[134]. These estimates were derived using two complementary approaches: first, by modelling health-related quality of life across PGSI severity categories; and second, by modelling quality-of-life decrements associated with the accumulation of specific gambling-related harms, identified using a checklist approach informed by the Langham framework. Two established health-economic methods were applied in this work: 'direct' and 'indirect' elicitation.

> **Direct elicitation method (a less conservative method):** In this approach, individuals are asked how many years of life they are willing to sacrifice to live with a poorer quality of life. This is achieved through 'pen portrait' hypothetical scenarios of various gambling harm experiences presented to a panel. The panel of individuals are asked at what point they would be indifferent between living for a longer amount of time with specific health issues (in this case, gambling harms) versus living a shorter period of time in "perfect health" (i.e. without gambling harms). With another approach, individuals are asked to rate different health states on a scale from 0 (death) to 100 (perfect health), placing and contrasting hypothetical scenarios of gambling harm against various health problems with previously determined QALYs.
>
> However, these methods may over-estimate harm, due to respondents overestimating the effects of gambling due to moralisation and stigmatisation of gambling harm, leading to higher estimates of harm, and rendering the perceived social costs of gambling larger than they objectively are (for discussion, see Browne *et al,* 2023)[134].
>
> **Indirect elicitation method**[133] **(more conservative approach):** A complementary "*indirect elicitation*" protocol is not liable to the same biases. This involves survey approaches, which ask about gambling behaviours, various comorbidities for gambling harm (e.g. drinking, drug use, long term health conditions), and also asks questions from standardised HRQoL questionnaire tools – such as the SF-6D or the EuroQoL-5D (EQ-5D). The survey data is analysed and statistically modelled to benchmark these against instruments such as the PGSI, where known risk factors for experiencing gambling harms are accounted for by weighting, and comorbidities are controlled in multivariate statistical models. Such an approach requires detailed knowledge about the relative risks for experiencing gambling harms, alongside rates of comorbidities. However, these have been recently enumerated from reviews and meta-analysis[133], providing a ready-made analytic framework to use this approach. The indirect elicitation method is currently the recommended approach[134].

Within the Australasian context, using the direct elicitation methods, it has been established that the HRQoL decrements for 'problem gambling' (i.e. 8+ on the PGSI) typically fall around the mid-point of the 0-1 scale similar to severe conditions such as cocaine dependence, anxiety disorder, and alcohol dependence[135,136],. However, there are concerns that impacts at low (with decrements of 0.13) and moderate levels of harm (decrements of 0.29) may be over-inflated due to response biases[134]. Using the more conservative, indirect elicitation approach, lower decrements were observed: In the Australian context, these were 0.005 for low-risk gambling; 0.05 for medium risk and 0.099 for high risk. Overall, such results start to peg gambling harms as having impacts that are equivalent to major mental health issues such as depression, and substance use related harms[136].

However, until now, such work has not been directly repeated in the GB context: only a single publication has attempted indirect elicitation methods, using secondary analysis of Health Survey for England (HSE) data. With the HSE dataset only including the EQ-5D – a HRQoL instrument focused on serious physical health issues – the study had non-significant results, concluding that the EQ-5D is not appropriate for detecting changes in

HRQoL[3] from gambling[105]. Therefore, our overarching aim was to import the indirect elicitation method into the GB context, but using measurement tools and approaches that were more suitable for benchmarking the HRQoL impacts from gambling harms.

We aimed to improve on existing work in several ways. First, whilst most models estimate *risk of harm* (i.e. from PGSI) our aim was to use the GHSI as a measure of actual, lived experience of harm**.** Second, most health utility instruments used to date (e.g., EQ-5D, SF-6D) emphasise physical functioning and pain/mobility domains[137,138], capturing only a fraction of gambling-related harms, and largely ignoring aspects such as psychological wellbeing, relational conflict, capability loss, and social participation. Therefore, we also included a measure of 'capability' (the ICECAP-A), which moves deemphasises physical functioning and measures broader aspects of life functioning – better suited to wellbeing impacts likely associated with gambling harm. Finally, there has been limited analysis conducted on the health utility impacts on affected others. Through the inclusion of the GHSI-AO-10 instrument, we aimed to also model the HRQoL impacts of gambling harms to affected others.

3.2 Research aims

This chapter aimed to establish how gambling-related harms translate into measurable losses in health-related quality of life and capability in a Great Britain context. Specifically, we aimed to:

1. Quantify the association between increasing gambling harm and decrements in health utility and capability, using indirect elicitation methods.

2. Compare how different gambling measures (the PGSI and the GHSI-10) perform in explaining health utility outcomes.

3. Examine whether people affected by someone else's gambling experience comparable reductions in health utility and capability to those harmed by their own gambling.

To address these aims, we conducted survey based indirect elicitation analyses using the dataset collected for Chapter 2, which included validated measures of gambling harm, health utility, capability, and relevant demographic and behavioural covariates. Through the above goals, we aimed to both repeat and extend the international evidence in several ways:

- From gambling behaviours, we conducted indirect elicitation analysis models with:
    - The PGSI, as a well-known and historically important measure of gambling behaviour and risk.
    - The GHSI-10, as a new, holistic, co-developed measure of gambling harm (see chapter 2).
- For health utility, our indirect elicitation models included:
    - The SF-6D, as a well-used measure of HRQoL, often included in similar gambling studies [105,139,140]. However, it is limited by its focus on physical functioning and pain/mobility.

[3] This is why we did not include the EQ-5D in our study.

- The ICECAP-A[110], which is a more appropriate HRQoL tool for this context. This is a 5-item measure of capability, assessing five conceptual attributes (Attachment, Stability, Achievement, Enjoyment, and Autonomy), and recommended by NICE for measuring and valuing effects for non-health interventions[111].

- In terms of people affected by gambling:
  - People directly affected by their own gambling, measured using the GHSI-10.
  - People affected by someone else's gambling, measured using the GHSI-AO-10.

3.3 Summary of methods

The indirect elicitation method estimates reductions in wellbeing by modelling the association between gambling-related harm and validated health utility outcomes (i.e. the SF-6D, ICECAP-A). To achieve this, we implemented a process very similar to work previously pioneered in the Australian context[133,136], using a "propensity model" and regression approach that is essentially identical across both study tranches (Directly Affected; Affected Others). The propensity model statistically controls for the demographic differences between those who have and have not experienced gambling harms – importantly propensity mimics some of the control found in the "gold standard" randomised control trial (RCT), but without the ethical implications of inducing gambling harm. Regression models allow us to predict the outcome of interest (in this case health utility) from a range of predictors (e.g. gambling harm/risk of harm, age, gender, etc.)

Survey of people who gamble and affected others: Detailed in Chapter 2, this involved a large survey of people who gamble and affected others, collected from online survey panel Prolific.com, applying exclusion criteria, and defining harmed versus non-harmed groups for both people who gamble and affected others. When entering the sample into the propensity model, extreme responders (those who have overly low or high propensity scores once all factors are accounted for) are removed in a process referred to as trimming to ensure that single cases do not have undue influence on the final model[141], and then using the trimmed sample in the regression models. Given this trimming, the sample differs from that in Chapter 2. See Table 3.1 for demographic details of the final cohort used for regression.

This survey included the necessary measurement of gambling harm and wellbeing (GHSI-10, GHSI-AO-10, PGSI; and ICECAP-A, SF-6D), alongside known various demographic and risk-factor variables, previously used and recommended for this analysis approach[133,134] (age, gender, ethnicity, immigration status, sexuality, highest level of education, personal and household income, employment status, occupation, alcohol consumption, smoker status, and marital status, diagnosed mental illness). See Table 3.1 for the full list of covariates, which were entered into statistical analyses.

Table 3.1: *Sample and demographics for both affected others and people who gamble. Sample represents only those entered into final models after trimming, and the list of variables are those entered into the propensity weighting process. Note. Some demographic categories were inherited from the panel provider (Prolific),and may therefore not reflect most recent and appropriate Office for National Statistics (ONS) demographic identifiers. See supplementary materials for variables included in each round of modelling:*
https://osf.io/przxm/files/2hzxp?view_only=6c219a363e3a4b0d9a34e8a80e9da13b
[1]As three propensity weighted models were computed three slightly different samples were used to account for extreme responders. Sample represents only those entered in the final model after trimming. [2]Mean (SD); n (%)

	Population		
Characteristic	**Affected Others** N = 2,306[1]	**People Who Gamble (GHSI)** N = 2,335[1]	**People Who Gamble (PGSI)** N = 2,335[1]
Age[2]	38 (12)	40 (12)	39 (12)
Gender			
Woman (including Trans Female/Trans Woman)	1,259 (55%)	1,152 (49%)	1,134 (49%)
Man (including Trans Male/Trans Man)	1,014 (44%)	1,155 (49%)	1,173 (50%)
Non-binary (would like to give more detail)	20 (0.9%)	16 (0.7%)	16 (0.7%)
Rather not say	13 (0.6%)	12 (0.5%)	12 (0.5%)
Immigration status			
Yes, I was born in the country I am now living in	2,159 (94%)	2,201 (94%)	2,201 (94%)
No, I moved to the country I am now living in	144 (6.2%)	132 (5.7%)	132 (5.7%)
Rather not say	3 (0.1%)	2 (<0.1%)	2 (<0.1%)
Highest education level			
No formal qualifications	15 (0.7%)	17 (0.7%)	14 (0.6%)
Secondary education (e.g. GED/GCSE)	303 (13%)	316 (14%)	316 (14%)
High school diploma/A-levels	421 (18%)	394 (17%)	392 (17%)
Technical/community college	258 (11%)	286 (12%)	287 (12%)
Undergraduate degree (BA/BSc/other)	889 (39%)	910 (39%)	917 (39%)
Graduate degree (MA/MSc/MPhil/other)	380 (16%)	369 (16%)	367 (16%)
Doctorate degree (PhD/other)	37 (1.6%)	39 (1.7%)	38 (1.6%)
Don't know / not applicable	3 (0.1%)	4 (0.2%)	4 (0.2%)
Personal income in GBP			
Less than 10,000	303 (13%)	260 (11%)	266 (11%)
10,000 - 19,999	334 (14%)	324 (14%)	318 (14%)
20,000 - 29,999	585 (25%)	606 (26%)	602 (26%)
30,000 - 39,999	468 (20%)	491 (21%)	494 (21%)
40,000 - 49,999	273 (12%)	278 (12%)	281 (12%)
50,000 - 59,999	119 (5.2%)	130 (5.6%)	129 (5.5%)

Characteristic	Population		
	Affected Others N = 2,306[1]	People Who Gamble (GHSI) N = 2,335[1]	People Who Gamble (PGSI) N = 2,335[1]
60,000 - 69,999	66 (2.9%)	79 (3.4%)	81 (3.5%)
70,000 - 79,999	20 (0.9%)	26 (1.1%)	25 (1.1%)
80,000 - 89,999	22 (1.0%)	27 (1.2%)	26 (1.1%)
90,000 - 99,999	9 (0.4%)	12 (0.5%)	11 (0.5%)
100,000 - 149,999	13 (0.6%)	19 (0.8%)	19 (0.8%)
More than 150,000	4 (0.2%)	5 (0.2%)	5 (0.2%)
Rather not say	90 (3.9%)	78 (3.3%)	78 (3.3%)
Household income in GBP			
Less than 10,000	54 (2.3%)	55 (2.4%)	58 (2.5%)
10,000 - 15,999	71 (3.1%)	81 (3.5%)	80 (3.4%)
16,000 - 19,999	57 (2.5%)	56 (2.4%)	57 (2.4%)
20,000 - 29,999	286 (12%)	290 (12%)	285 (12%)
30,000 - 39,999	283 (12%)	287 (12%)	298 (13%)
40,000 - 49,999	288 (12%)	297 (13%)	296 (13%)
50,000 - 59,999	266 (12%)	280 (12%)	273 (12%)
60,000 - 69,999	240 (10%)	241 (10%)	240 (10%)
70,000 - 79,999	199 (8.6%)	184 (7.9%)	185 (7.9%)
80,000 - 89,999	144 (6.2%)	147 (6.3%)	148 (6.3%)
90,000 - 99,999	110 (4.8%)	116 (5.0%)	114 (4.9%)
100,000 - 149,999	178 (7.7%)	182 (7.8%)	181 (7.8%)
More than 150,000	35 (1.5%)	37 (1.6%)	37 (1.6%)
Rather not say	95 (4.1%)	82 (3.5%)	83 (3.6%)
Employment status			
Full-Time	1,515 (66%)	1,613 (69%)	1,607 (69%)
Part-Time	401 (17%)	372 (16%)	368 (16%)
Due to start a new job within the next month	15 (0.7%)	10 (0.4%)	10 (0.4%)
Unemployed (and job seeking)	94 (4.1%)	85 (3.6%)	89 (3.8%)
Not in paid work (e.g. homemaker', 'retired or disabled)	217 (9.4%)	197 (8.4%)	203 (8.7%)
Other	64 (2.8%)	58 (2.5%)	58 (2.5%)
Rural or Urban living			
Urban	1,799 (78%)	1,790 (77%)	1,787 (77%)
Rural	507 (22%)	545 (23%)	548 (23%)
Ethnic Group			
White	2,037 (88%)	2,103 (90%)	2,103 (90%)
Mixed or multiple ethnic groups	76 (3.3%)	67 (2.9%)	69 (3.0%)
Asian or Asian British	106 (4.6%)	86 (3.7%)	84 (3.6%)
Black, African, Caribbean or Black British	75 (3.3%)	66 (2.8%)	67 (2.9%)
Other ethnic group	8 (0.3%)	9 (0.4%)	7 (0.3%)

Characteristic	Population		
	Affected Others N = 2,306[1]	People Who Gamble (GHSI) N = 2,335[1]	People Who Gamble (PGSI) N = 2,335[1]
Prefer not to say	4 (0.2%)	4 (0.2%)	5 (0.2%)
Grouping for AUDIT-C			
Low Risk (0-4)	1,236 (54%)	1,255 (54%)	1,243 (53%)
Increasing Risk (5-7)	896 (39%)	892 (38%)	894 (38%)
High Risk (8+)	174 (7.5%)	188 (8.1%)	198 (8.5%)
Recreational drug use			
Yes	586 (25%)	561 (24%)	570 (24%)
No	1,649 (72%)	1,701 (73%)	1,690 (72%)
NA	71 (3.1%)	73 (3.1%)	75 (3.2%)
Daily cigarettes	1.0 (3.8)	1.1 (3.9)	1.1 (4.0)
Recipient of Disability Support Payments			
Yes	279 (12%)	273 (12%)	275 (12%)
No	1,988 (86%)	2,033 (87%)	2,029 (87%)
NA	39 (1.7%)	29 (1.2%)	31 (1.3%)
Long term mental health condition			
Yes	606 (26%)	590 (25%)	599 (26%)
No	1,652 (72%)	1,710 (73%)	1,699 (73%)
NA	48 (2.1%)	35 (1.5%)	37 (1.6%)
AO - Active Gambler			
Still Gambling	1,843 (80%)	—	—
No longer gambling	463 (20%)	—	—
Unknown	0	—	—
AO - Formal Support			
Formal Support	111 (4.8%)	—	—
No formal support	2,195 (95%)	—	—
Unknown	0	—	—
AO - Informal Support			
Informal Support	566 (25%)	—	—
No informal support	1,740 (75%)	—	—
Unknown	0	—	—
AO - In contact			
Still in contact	2,198 (95%)	—	—
No longer in contact	108 (4.7%)	—	—
Unknown	0	—	—

Statistical Analyses: We estimated the impact of gambling harm on health and wellbeing using propensity-weighted models. This method enables a fair comparison between people who experienced harmed versus those who did not, by adjusting for the factors that influence the likelihood of experiencing harm in the first place. These include things like age, income, ethnicity, alcohol use, smoking, or mental health (see Table 3.1) This

approach is used because more robust types of experimental approaches (such as randomised control trials) are simply not appropriate (i.e. ethically, we could not randomly "assign" people to gambling harm versus non-harm in an experiment). As a best viable alternative, propensity weighting is a way of recreating the balance we might normally get in a randomised trial.

The process works in three stages:

First, we captured factors that predict whether someone is harmed or not from a range of potential factors (for example, age, income, ethnicity, alcohol use, smoking, or mental health). These predictors were identified separately in each of the different models (see below and supplementary information, where there are different models, for PGSI, for GHSI, GHSI-AO-10, etc.).

Second, these predictors are used to calculate a propensity score for each participant: this is simply the statistical probability that someone with their characteristics would fall into the "harmed" or "unharmed" group.

Third, these scores are then converted into weights, so that people who were *more likely* to be harmed were given less influence in the harmed group, and more influence in the unharmed group, and vice versa. For example, women are more likely to be affected others, so their responses are automatically adjusted ("down-weighted" in the affected group and "up-weighted" in the non-affected group) to avoid results being driven by gender differences rather than gambling harm itself. For details see[133,140].

For final models see: https://osf.io/przxm/files/2hzxp?view_only=6c219a363e3a4b0d9a34e8a80e9da13b. Importantly, this weighting step is the same regardless of the wellbeing measure (i.e. SF-6D or ICECAP-A), gambling measure, or whether the model is for directly harmed or affected others.

Once weighting was complete, we fitted the final statistical models (a logistic multivariate regressions[4]) to estimate how much health and capability decline was associated with different levels of gambling-related harm, where the various demographic variables (see Table 1) were entered into the models. There are two ways the model can be run – either as a "linear model", which compares the *increasing scores* on GHSI or PGSI against decrements to wellbeing, or as a "categorical model" where *categories* of GHSI or PGSI (i.e. unharmed, low, medium, high) are compared to decrements in wellbeing. For the categorical models, we used the following categories for the GHSI and the PGSI, based on scores on the scales:

	Categories for the PGSI	**Categories for the GHSI-10 and GHSI-AO-10**
Unharmed:	0	0
Low:	1-2	1-2
Moderate:	3-7	3-7
High:	8+	8-14

[4] A form of regression that allows for a range of predictors and binary outcome measure, in this case using predictors of harm with the outcomes of Harmed Vs. Not Harmed.

Severe: 15+

For these category thresholds, the Low, Moderate and High thresholds are familiar from the PGSI. These can be justifiably applied to the GHSI, as with both linear regression models and RMT models (see Chapter 3), scores on the PGSI and GHSI-10 are approximately equivalent. This means that the familiar categorisation of the PGSI (i.e. low, moderate, high) equate to similar levels of harm severity. However, we also added the "severe" harm category at 15+ for the GHSI, not used in the PGSI. This was enabled by the inclusion of the "serious" high harm items in the GHSI-10 (i.e. items 8, 9 and 10, around serious relationship, wellbeing and financial harms). By analysing RMT data, a score of 15 is observed as the point at which around half of respondents start responding positively to the serious harm items, thus supporting a "severe" categorisation.

Weighted models: Overall, we used the above approach to run a series of weighted models that predict HRQoL (i.e. from either SF-6D or ICECAP-A) from the PGSI, the GHSI-10, or the GHSI-AO-10. These were:

SF-6D – health utility models.

vs PGSI; both linear and categorical models
vs GHSI-10, both linear and categorical models
vs GHSI-AO-10, both linear and categorical models

ICECAP-A – Capability models.

vs PGSI; both linear and categorical models
vs GHSI-10, both linear and categorical models
vs GHSI-AO-10, both linear and categorical models

3.4 Results

Overall, from all our models below, there was one consistent message: gambling harms – whether experienced directly or as an affected other – lead to significant decrements to health utility (from the SF-6D) and capability (from the ICECAP-A). These impacts on health and capability are comparable to serious long-term conditions. By using standard health economic approaches, we also establish that even relatively small changes (e.g. of around 2-3 points) in the GHSI-10 and GHSI-10-AO are clinically meaningful. Our analysis also shows that, whilst GHSI-10 is better at predicting wellbeing and capability, it achieves this whilst simultaneously categorising a smaller proportion of people as being harmed.

Linear models: These allow us to view the 'per-point' decrease in health utility and capability See Figure 3.1, which demonstrates the linear relationship between harm and decrements to capability.

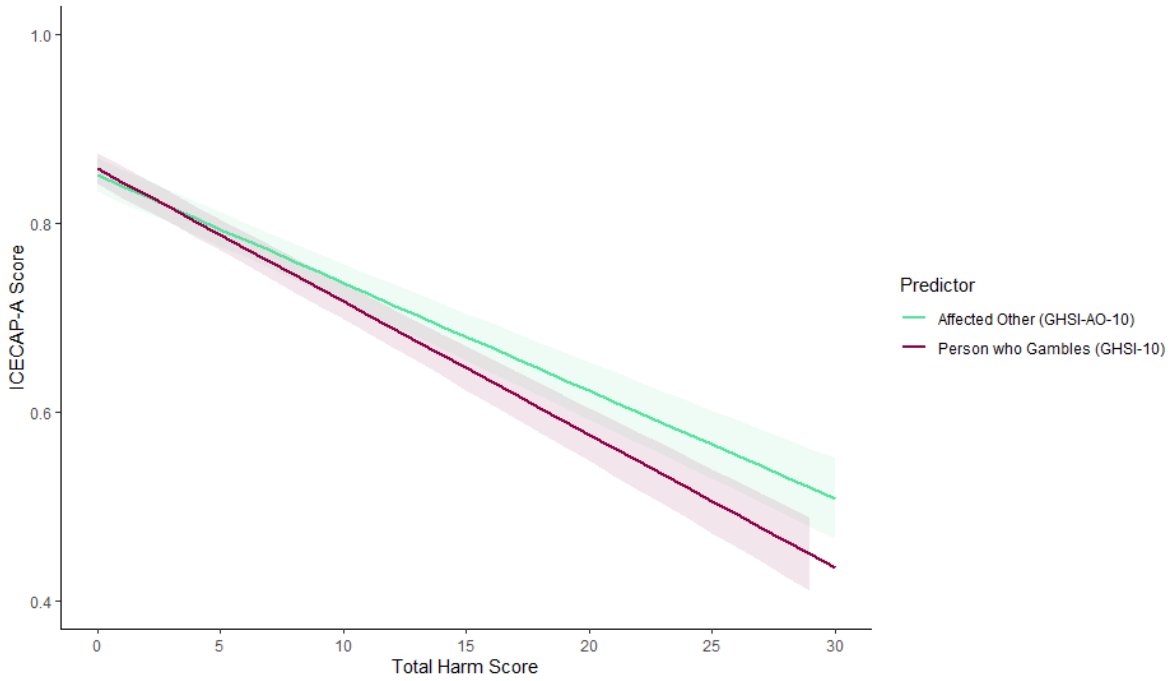


Figure 3.1: *Linear model of decrements to capability from increasing levels of gambling harm from people who gamble (GHSI) and affected other (GHSI-AO-10).*

See Table 3.2 for full results of all models. For the linear models, results reveal that mean scores for *unharmed* people who gamble or affected others (ranging from 0.88-0.93 for SF-6D and 0.79-0.85 for ICECAP-A) are largely consistent with other results, where healthy adults are around 0.85 for SF-6D[114,142] and around 0.9 for ICECAP-A[110,143].

On average, each increase of a single point on the GHSI-10 leads to a decrement in both health utility and capability of around 1.5%. As an affected other, each point increase in the GHSI-AO-10 leads to only slighter smaller decrements equivalent to around 1.3%. This means that as someone's score on GHSI instruments or PGSI reaches a level equivalent to high harm (i.e. 8+), the decrements to wellbeing and capability are substantive; as seen more readily on the categorical models below. In health economic terms, the decrements are substantive and meaningful. With the SF-6D, the 'minimally clinically important difference' (MCID) is around 0.03-0.05 – the range that is typically needed for patients or clinicians to perceive a notable decline (or improvement) in health-related quality of life [144]. This equates to around a 2–3-point change in scores on the GHSI instruments,

Categorical models: See Table 3.2 and Figure 3.2. In Table 3.2, it is observed that decrements for health utility on the SF-6D for people who gamble (GHSI-10) are 0.1 for high harms; and around 0.3 for severe harms. For affected others (GHSI-AO-10), these decrements are only slightly attenuated (0.08 for high harm; 0.23 for severe harm). A similar pattern of results is observed for ICECAP-A – where results are also displayed versus comparison data on Figure 3.2.

Table 3.2: *Decrements to health/capability for all predictors (gambling harm, risk of gambling harm, and harm to affected others). Two models are presented for each predictor, one entered as a linear term and the other categorical. Note. Estimates are from larger models with additional predictors, repeated here for easier comparison – see https://osf.io/przxm/overview?view_only=6c219a363e3a4b0d9a34e8a80e9da13b for full model details. For categorical models, standard PGSI thresholds are used, but with an additional severe risk/harm threshold added at 15+ for GHSI-10 and GHSI-AO-10 (i.e. 1-2, 3-7, 8-15, 15+). ‡ Proportional difference is calculated such that the decrement is calculated as a proportion of no harm utility*[136] *Significance values: p < .05; * p < .01; ** p < .001; *** p < .0001*

				SF-6D (health)			ICECAP-A (Capability)		
Gambling Measure	**Linear or Categorical⁺**	**Coefficients**	***N***	**Decrement**	**(Std. error)**	**Proportional Difference (%)‡**	**Decrement**	**(Std. error)**	**Proportional Difference (%)‡**
PGSI	Linear	Intercept***	2,335	0.890	(0.056)	-	0.790	(0.048)	-
		per point***	-	-0.015	(0.001)	-1.7%	-0.016	(0.001)	-2.0%
	Categorical	(Intercept)/No Risk***	875	0.874	(0.057)	-	0.790	(0.049)	-
		Low-Risk*	620	-0.021	(0.010)	-2.4%	-0.054	(0.009)	-6.8%
		Medium-Risk***	510	-0.061	(0.011)	-7.0%	-0.083	(0.009)	-10.5%
		High-Risk***	330	-0.166	(0.014)	-19.0%	-0.188	(0.012)	-23.8%
GHSI-10	Linear	Intercept***	2,335	0.930	(0.051)	-	0.826	(0.044)	-
		per point***	-	-0.014	(0.001)	-1.5%	-0.014	(0.001)	-1.7%
	Categorical	(Intercept)/No Harm***	1,147	0.930	(0.051)	-	0.831	(0.045)	-
		Low Harm***	425	-0.050	(0.011)	-5.4%	-0.056	(0.009)	-6.8%
		Moderate Harm***	418	-0.066	(0.011)	-7.1%	-0.079	(0.010)	-9.5%
		High Harm***	192	-0.102	(0.015)	-10.9%	-0.123	(0.013)	-14.8%
		Severe Harm***	153	-0.295	(0.018)	-31.7%	-0.291	(0.015)	-35.0%
GHSI-AO-10	Linear	Intercept***	2,306	0.875	(0.058)	-	0.852	(0.048)	-
		per point***	-	-0.011	(0.001)	-1.3%	-0.011	(0.001)	-1.3%
	Categorical	(Intercept)/No Harm***	1,372	0.893	(0.056)	-	0.846	(0.046)	-
		Low Harm.	302	-0.019	(0.011)	-2.1%	-0.025	(0.009)	-2.9%
		Moderate Harm**	321	-0.037	(0.012)	-4.1%	-0.039	(0.010)	-4.6%
		High Harm***	188	-0.080	(0.016)	-9.0%	-0.093	(0.013)	-11.0%
		Severe Harm***	123	-0.232	(0.019)	-26.0%	-0.225	(0.016)	-26.6%

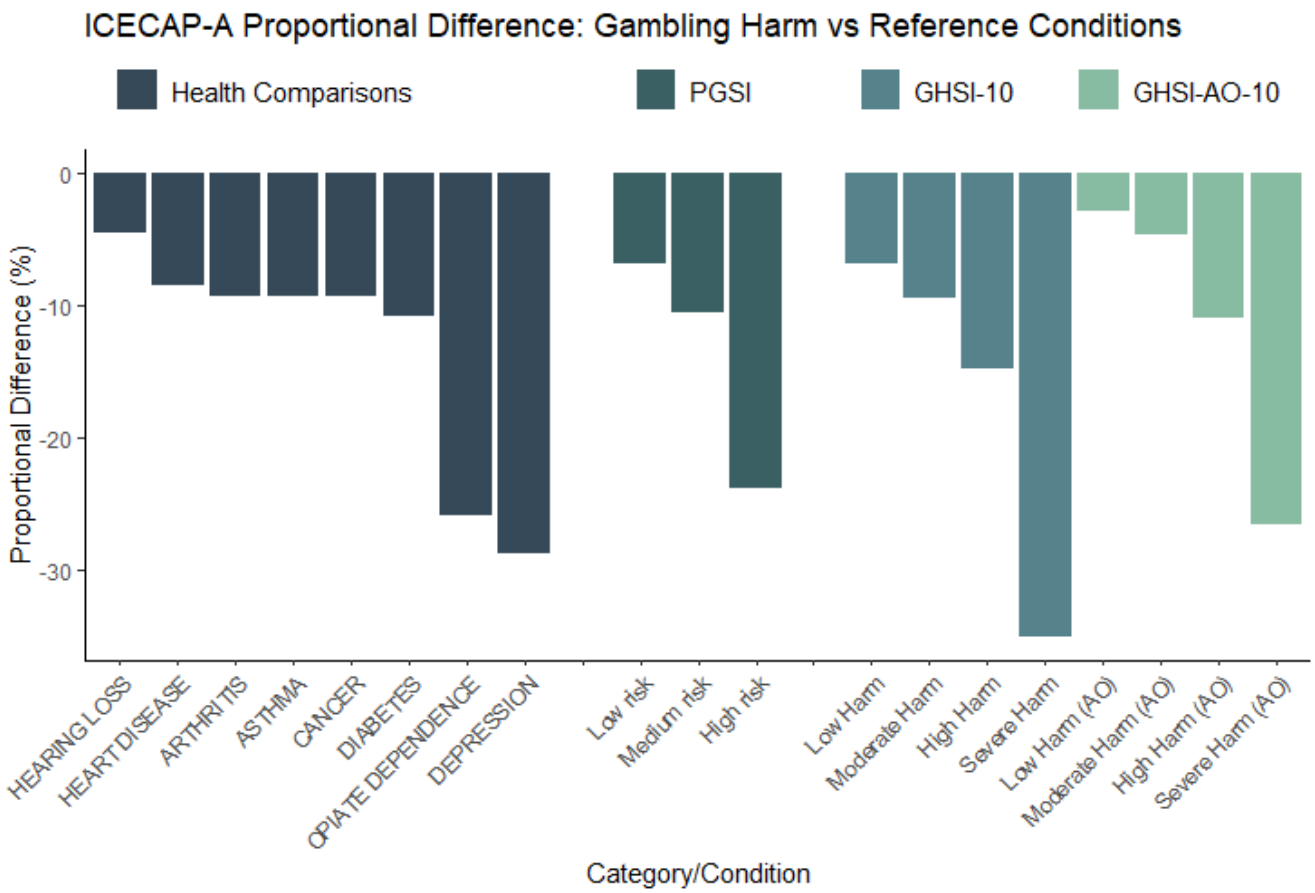


Figure 3.2: *Categorical models. Decrements are shown as a proportional percentage difference (i.e. percentage decrement when compared to healthy people, enabling comparison between studies that have different baseline data for healthy people). On the left (dark green), comparison data is drawn from previous studies with ICECAP for health conditions* [145]*, and opiate dependence*[146]*. This is followed by results of our categorical models according to low harm (score 1-2), moderate (2-7), high (8-14) and severe (15+). See Table 3.2 and supplementary information for underlying data.*

Overall, the models explained substantial variance in health utility, explaining around 23-28% of the variance in our sample for the ICECAP-A, and around 32-35% for SF-6D, (see supplementary file for model performance metrics: https://osf.io/przxm/overview?view_only=6c219a363e3a4b0d9a34e8a80e9da13b). Moreover, model fit was consistently higher for GHSI than PGSI models (see supplementary information). Essentially, this means that the GHSI-10 was better than the PGSI at explaining differences in wellbeing and capability between different people. Moreover, GHSI-10 revealed a larger number of people in the unharmed category than the PGSI (1,147 versus 875), with this larger cohort of unharmed people exhibiting higher health utility and capability. In other words, whilst GHSI-10 is better at predicting wellbeing and capability, it achieves this whilst simultaneously categorising a smaller proportion of people as being harmed.

Relationship to the person who gambles

The interaction between the impact of GHSI-AO-10 on capability was examined with regards to the affected other's relationship with the person who gambles. Relationships were classified as partners (i.e. significant others), first degree relatives (i.e. parents, children or siblings), or friends and wider relatives. The overall interaction between GHSI-AO-10 and relationship type significantly improved model fit (F [4, 2265] = 2.60, p = .034), indicating that relationship type does moderate the effect of gambling harm severity. Partners of people gambling experienced the steepest capability wellbeing decrements (β = -0.0136 per GHSI-AO point, p<.001). This effect was smaller for first degree relatives (interaction β = 0.0044, p = .014) and friends and wider relatives

(interaction β = 0.0035, *p* = .026). Figure 3.3 demonstrates the differing linear trends for each relationship. To further illustrate, a partner scoring 15 on the GHSI-AO-10 (and thus classified as experiencing severe harm) would experience a decrement to capability of 0.20 versus an unharmed person, where a first degree relative would experience a decrement of 0.14.

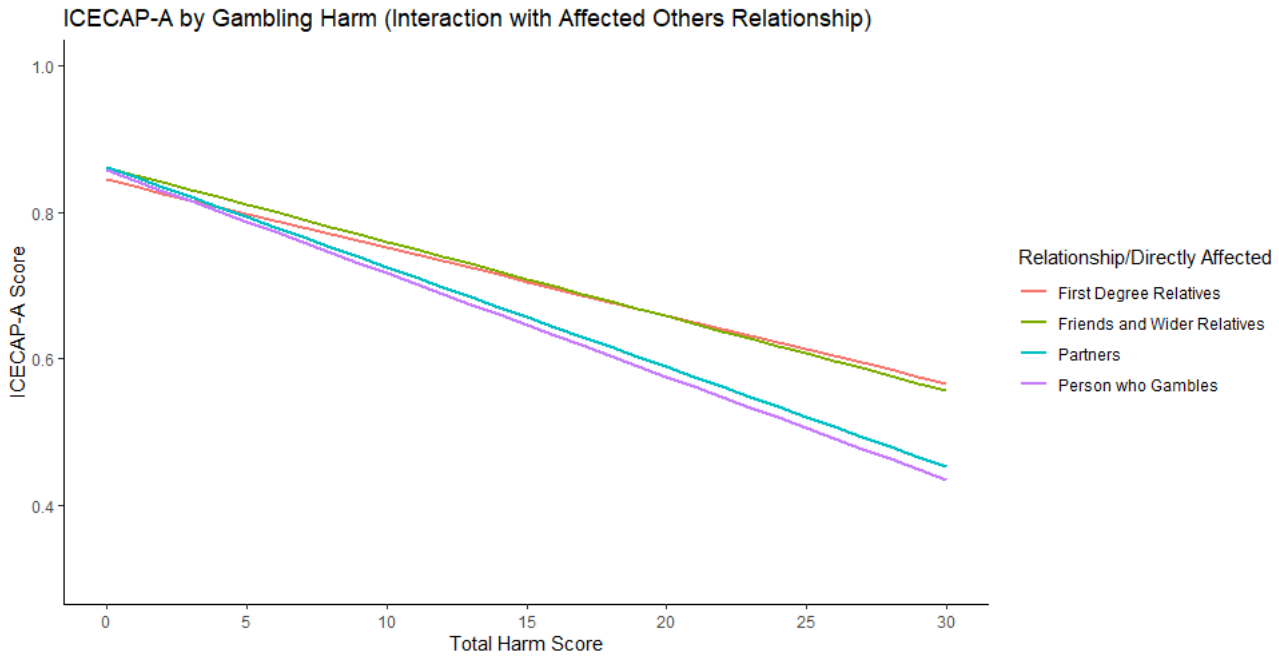


Figure 3.3: *How different relationship type influences the relationship between GHSI-AO-10 versus ICECAP-A. The biggest impacts are on partners (blue line) which closely tracks the capability decrements experienced by the person who gambles (purple line).*

3.5 Discussion

The study used health utility and capability as key outcome measures, benchmarked against gambling harms. Methodologically, we used propensity score matching of affected and unaffected individuals, whilst simultaneously controlling for known comorbidities so as not to over-attribute associated decrements to gambling. Whilst conservative, this 'indirect elicitation' approach has been deemed the most appropriate method for assessing the health utility impacts attributable to gambling harms from cross-sectional self-report data[140], providing a useful complement to the directly elicited preference-based utilities used in prior work[147].

Health utility decrements from gambling

Overall, our analyses demonstrate that gambling harms have substantial, quantifiable impacts on both health utility and capability. Using SF-6D – one of the most well-established health economic measures – the impacts from high (8+) or severe (15+) gambling harms on the GHSI-10 revealed decrements of 0.1 and 0.3 respectively, equating to around 11% to 32% reduction in health-related quality of life. Such decrements are remarkably similar to previous research in the Australasian context, which observed decrements for high-harmed people who gamble (e.g. 8+ on PGSI) using the SF-6D ranging from 11%[103,140] to 18%[139].

In health economic terms, the decrements observed in our indirect elicitation are substantive and meaningful. With the SF-6D, the 'minimally clinically important difference' (MCID) is around 0.03-0.05 – this is deemed the

range that is typically needed for patients or clinicians to perceive a notable decline (or improvement) in health-related quality of life[144]. Thus, moving between harm statuses (e.g. from high to moderate, for example) is clinically meaningful.

Whilst substantive, it has been highlighted that such decrements are not as great as observed disability weights for other substance related harms and mental health issues, taken from the Global Burden of Disease (GBD) study[148]. However, GBD estimates are derived from layperson evaluations of hypothetical vignettes describing specific health states, often assuming acute, unmoderated symptoms – which explains why decrements from indirect approaches, while substantial, are attenuated compared to the disability weights assigned in GBD analyses[140]. When disability weights for gambling are determined using the same direct elicitation methods – more aligned with GBD approaches – they have established somewhat higher decrements in the range of 0.28-0.58[135,136,140]. This is similar to impacts (for example) from major depressive disorder (moderate = 0.4; severe = 0.66) and alcohol dependence (0.37)[5].

Rather than comparing our results against the different methods of the GBD studies, we contrasted our results against more similar methodological approaches. This reveals that gambling harms are directly comparable to other serious substance related harms and health issues. For example, when compared with data from the Adult Psychiatric Morbidity Survey[149], where data were analysed using a similar controlled regression method, decrements to SF-6D from anxiety disorder (-0.09) and depression (-0.14) were comparable to our decrements from high and severe gambling harms (-0.1 and -0.3). Interestingly analysis of the APMS established that alcohol dependence had a negligible and non-significant relationship with SF-6D decrements[149], with similar results being found elsewhere[150]. Similarly, drug dependence had a somewhat attenuated decrement (-0.03).

Capability decrements from gambling.

We used the SF-6D (described above) because of the existence of these well-established valuation sets and MCIDs. However, it is not the ideal construct for benchmarking harms from gambling: it emphasises pain, physical functioning and role limitations. As a result, SF-6D decrements may systematically understate the lived experiences of gambling harms, relative to conditions with substantial physical morbidity (e.g. rheumatoid arthritis). Furthermore, the SF-6D (as a health-focused instrument) is unable to capture the full scope of impacts to wellbeing and life-satisfaction caused by gambling harms, thereby representing a relatively insensitive benchmark, especially when compared to health issues with substantive physical impacts.

It was for these reasons that we also included the ICECAP-A within our study. Capturing broader aspects of life functioning, defined as capability, ICECAP-A is recommended by NICE for measuring and valuing effects for non-health interventions[111]. As a newer measure, valuation sets are still evolving – nonetheless, it does enable a fairer comparison against other substance harms and health conditions. As shown in Figure 3.2, severe

[5] See p49 for a list of comparator data: https://responsiblegambling.vic.gov.au/documents/1206/RES0118_The_Gambling_Harms_Scales.pdf

gambling harms are more substantive than decrements from opiate dependence[146] (0.17[6]) and depression (decrement of 0.19).

Impacts on Affected Others

Perhaps one of the most striking findings from our study is the extent to which those affected by another person's gambling experience capability and health utility losses comparable to those who gamble themselves. These findings suggest a powerful "secondary transmission" of gambling harm, where close relationships with the person who gambles predicts the emotional, financial, and relational fallout experienced by others. This emphasises that gambling harm is not an individual problem, but one that radiates outward, causing substantive decrements to the wellbeing and capabilities of surrounding social networks.

Crucially, the use of matched instruments (the GHSI-10 and GHSI-AO-10), which were developed to reflect comparable harm domains across both directly and indirectly affected individuals, allowed for a unique and methodologically robust comparison. This design feature provided a rare opportunity to meaningfully quantify the mirrored effects of harm across these groups. Importantly, these effects were not limited to severe cases; moderate and high scores on the GHSI-AO-10 still produced clinically meaningful decrements. Our results also showed that capability losses were greatest among intimate partners. Notably, in our sample, the proportion of affected others in the "high" and "severe" categories was only slightly lower than those of those directly affected (Table 3.2). Future economic evaluations, public health interventions, and burden of disease studies must ensure that the voices and losses of affected others are adequately accounted for.

GHSI-10 Validity

The analyses above further support the construct validity and applied value of the GHSI-10. Across all models, the GHSI-10 consistently explained a greater proportion of the variance in wellbeing and capability than the PGSI, reinforcing its sensitivity to the lived experience of harm. Importantly, it did so while identifying a smaller proportion of the sample as harmed, suggesting it achieves greater predictive accuracy without inflating prevalence. In other words, it better detects the real-world consequences of gambling, but without "lowering the bar." This makes it a particularly valuable tool for population monitoring and harm reduction evaluation. Moreover, the GHSI-10 outperformed the PGSI despite its broader conceptual focus on harm rather than gambling behaviour or symptoms of disordered gambling, suggesting that instruments grounded in health and social outcomes may better align with public health framing and health economic modelling.

Population level estimates of burden of harm

Previous work in Australia has used the observed decrements in HRQoL to make population-level extrapolations[140]. Our analyses enable similar extrapolations, but in the GB context. In Table 3.3, it can be observed that due the higher prevalence of people at low- and medium- risk of experiencing gambling harms, aggregate harms – quantified as years lost to disease and capability – are larger, on aggregate, than the harm to those at high risk. Such results confirm the 'prevention paradox' observed in other studies[135,151]: harms accruing to "non-problem gamblers" (who are far more common) exceed those of "problem gamblers". This phenomenon

[6]Opiate decrement calculated as population norm for 0.83 in UK general adults[145], subtracted by 0.662 for opiate dependence[146]; depression calculated as 0.83-0.637[145])

arises because the vast number of individuals in low- and medium-risk categories – despite experiencing less severe harm per person – collectively generates a greater total burden than the much smaller population of people at high-risk.

Table 3.3. *Burden of harm estimates in the GB population, according to PGSI categories. Estimates are made from prevalence rates in the 2024 Gambling Survey for Great Britain (column ("GSGB Prevalence") and the 2021 Health Survey for England (Column "HSE Prevalence")*[152,153]*. These are used to calculate the years lost to disease (YLD; from the SF-6D) and the years of lost capability (from the ICECAP-A), which are calculated as = Decrement * (Prevalence * 67,353,600 [Estimated 2024 GB population])*[154]*.*

Outcome	Risk of Harm	Decrement	GSGB Prevalence	GSGB YLD/YLC	GSGB Implied Proportion of Total Impact	HSE Prevalence	HSE YLD/YLC	HSE Implied Proportion of Total Impact
SF-6D	Low-Risk	-0.02	8.80%	-125276	22.6%	1.5%	-21354	33.2%
	Medium-Risk	-0.06	3.10%	-127809	23.1%	0.5%	-20614	32.1%
	High-Risk	-0.17	2.70%	-301097	54.3%	0.2%	-22304	34.7%
	Total	-	-	**-554182**	**100.0%**	-	**-64272**	**100.0%**
ICECAP-A	Low-Risk	-0.05	8.80%	-317455	38.1%	1.5%	-54112	50.4%
	Medium-Risk	-0.08	3.10%	-173299	20.8%	0.5%	-27951	26.0%
	High-Risk	-0.19	2.70%	-341436	41.0%	0.2%	-25292	23.6%
	Total	-	-	**-832189**	**100.0%**	-	**-107354**	**100.0%**

3.6 Limitations and future work

Our analyses rely on cross-sectional, self-report survey data. Although propensity weighting and extensive covariate adjustment reduce bias, they cannot fully resolve issues of residual confounding or reverse causality. For example, pre-existing mental health conditions may increase vulnerability both to gambling harms and to lower HRQoL, even after statistical adjustment. Furthermore, the sample was recruited via an online panel (Prolific) rather than through probability sampling of the general population. While eligibility criteria, trimming and weighting improve comparability between harmed and non-harmed groups, the resulting estimates may still differ from those generated in a fully representative GB sample. In particular, online samples may under-represent older adults, people with limited digital access, and those experiencing the most severe social exclusion. Similarly, our population-level YLD and capability-loss estimates depend on PGSI prevalence from GSGB and HSE, and make a number of assumptions and extrapolations; inaccuracies or shifts in underlying estimates will translate directly into revised burden estimates.

Our "operationalisation" of harm (i.e. how we measure harm in the GHSI) is deliberately designed to focus on harms that are dynamic and responsive to change, excluding some "hard-endpoint" harms (e.g. bankruptcy, relationship dissolution) from our short-form scales. This makes them appropriate for modelling change, but they may under-capture irreversible harms when considering lifetime burden. With such outcomes now captured within national datasets (i.e. the GSGB), further inclusion of HRQoL measures in such datasets could enable further analyses. Similarly, although we investigated impacts to affected others, we did not model wider community impacts (e.g. service use, community cohesion), which may be substantial.

Although our models adjust for a broad range of comorbidities, our estimates are therefore best understood as the marginal decrement associated with gambling harms, net of these co-occurring factors, rather than as a full account of the complex pathways through which gambling reshapes health and capability. Methodologically, there is scope to extend indirect elicitation beyond simple linear and categorical models, for example by more

complex network or state-transition (e.g. Markov) models that better capture interactions between gambling, comorbidities and social determinants.

Further work is also needed on valuation: GB-specific direct elicitation studies (e.g. using pen-portrait descriptions to develop hypothetical scenarios of harm, grounded in the GHSI framework) could be used to triangulate our indirect estimates, helping to bracket plausible ranges of gambling-related QALY and capability loss. Finally, there is a need to integrate health utility and capability findings with other dimensions of the holistic framework – including legal, community and cultural impacts. Such impacts can be further modelled using multi-criteria decision analyses (see Chapter 4), providing a more complete basis for comparing gambling with other public-health priorities.

3.7 Conclusion

This chapter has applied indirect elicitation methods to quantify the impact of gambling-related harms on health-related quality of life and capability in Great Britain. Using propensity-weighted models that control for a wide range of known risk factors and comorbidities, we show that both people who gamble and affected others experience substantial decrements on standardised health utility (SF-6D) and capability (ICECAP-A) measures as gambling harms accumulate.

Comparisons using the ICECAP-A suggest that capability losses from severe gambling harms are at least comparable to, and in some cases exceed, those associated with other major conditions such as depressive disorder and opiate dependence when valued on the same capability scale. When the impacts on affected others are included, the aggregate burden increases further, underscoring that gambling harms are not confined to the individual who gambles, but ripple outward through close relationships and households.

At a population level, those experiencing low and moderate risk represent a greater quantity of aggregate harm than those who are defined as problem gamblers. This pattern is consistent with the “prevention paradox,” and reinforces the argument that gambling harms require a whole-population public-health response, rather than a narrow focus on a perceived minority of “addicted” individuals.

Taken together, these findings have several implications. First, they provide quantitative support for conceptualising gambling harms as genuine decrements to health utility and capability, suitable for inclusion in standard cost-effectiveness and burden-of-disease frameworks. Second, they demonstrate that a harm-based measure such as the GHSI-10 performs better than a behaviour-based risk screen (PGSI) in explaining variance in wellbeing and capability. Third, the similar magnitude of decrements for affected others highlights that gambling is not a self-contained problem, but rather that any effective policy response must account for this “secondary” harm to loved ones. The fact that affected others can incur quality of life deficits essentially on par with those of people who gamble underlines the urgency of extending support and interventions to this often-unseen group. Fourth, these losses to health utility and capability are just as large as those caused by well-known mental health or substance use disorders. This is a striking finding that places gambling harms in the same league as other chronic health conditions; a genuine public health issue with measurable impacts on people’s well-being.

By anchoring the holistic framework of gambling harms and recovery within health utility and capability metrics, this chapter creates a bridge between gambling research and the wider health-economic and public-health toolkit. In the following chapter, we build on this foundation by comparing gambling with alcohol and other drugs

within a Multi-Criteria Decision Analysis, situating these quantified decrements alongside other dimensions of harm to inform future regulation, service planning and harm prevention strategies.

4. Comparing gambling related harms against drugs and alcohol: A Multi-Criteria Decision Analysis (MCDA) using the Holistic Framework

4.1 Background to the research

In this final chapter, we import a new tool into gambling research: Multi-Criteria Decision Analysis (MCDA). This is a standardised approach for integrating diverse expert input in evaluating and weighting multiple criteria, with the ultimate aim of aiding high-stakes decision-making. It has been used in areas such as medicine, finance and governance[155]. The overarching aim in this chapter is to prototype the MCDA approach for assessing gambling harms, examining how such harms compare with those arising from alcohol and illegal drugs. This allows us to understand the *scale and structure* of gambling harm. In this way, this chapter complements and extends findings from the previous chapter, where the expert judgement of MCDA directly contrasts with the statistically driven approaches of Chapter 3 and also enables a more nuanced, detailed understanding of harm, especially in comparison to other harmful and addictive behaviours. Finally, establishing and validating this approach will open a new route for assessing not only the severity of gambling harms, but also for assessing the effectiveness of policies and interventions designed to reduce such harms.

The method has been previously used to rank harms in the adjacent fields of psychoactive drugs and alcohol[156,157] – where findings proved controversial; prompting questions around existing drug classification systems. Whilst MCDA offered a systematic, transparent way of comparing harms, the findings challenged long-held assumptions – establishing that alcohol, on aggregate, is more harmful than many controlled and/or illegal drugs, such as heroin and cocaine. Subsequent studies have used this approach to assess the impacts of various policy alternatives for such psychoactive drugs – enabling evidence-based policy recommendations, such as decriminalisation of people who use drugs and legalised cannabis regulation offering advantages for harm reduction[158,159].

Comparing Gambling Harms to Alcohol and Drugs

At first glance, gambling, alcohol and drug use might seem like somewhat different issues. One involves placing bets; others involve consuming psychoactive substances, legal and illegal. Moreover, they all occupy quite distinct regulatory spaces. Illegal drugs are controlled under legislation such as the *Misuse of Drugs Act 1971* and through the Government's 10-year drugs strategy, *From Harm to Hope*[160], which seeks to reduce drug use, drug-related deaths and crime through a combination of supply disruption, treatment and recovery, and demand reduction. In contrast, other psychoactive substances (e.g. alcohol and nicotine) are managed through taxation,

product restrictions, education, and broader public-health measures – approaches shaped as much by historical, cultural and political factors as by evidence on harm.

In contrast, gambling regulation has historically taken a "lighter touch", more commercial approach. The *Gambling Act 2005* liberalised many aspects of the industry – expanding freedoms around product categories and advertising – and established the Gambling Commission as the regulator. The Act also tasked the industry with self-regulation through voluntary codes of practice, self-exclusion schemes, and voluntary contributions to research, education, and treatment rather than direct statutory controls.

This model, however, is now being fundamentally re-examined and reformulated. Following the Government's *High Stakes: Gambling Reform for the Digital Age* White Paper (2023), Great Britain is moving towards a more proactive, statutory framework. Key changes include the introduction of a mandatory levy on operators to fund research, education and treatment; new "affordability" or financial-risk checks; tighter controls on advertising and inducements; and strengthened consumer protections, such as default deposit-limit prompts. Collectively, these reforms signal a shift from voluntary self-regulation towards a public-health-oriented system of accountability and harm prevention. In this respect, gambling related policy is starting to mirror the public health approaches utilised with other legalised, substance-based harms.

These reforms are increasingly guided by high-quality monitoring data such as the new Gambling Survey for Great Britain (GSGB), which provides a detailed picture of participation, risk, and harm. However, while such data quantifies *gambling-specific harms*, they cannot tell us *how the harms compare* to other public health issues – either in weight or severity across harm components (e.g. wellbeing, resources, relationships) when compared to other harms from alcohol or drugs. Using MCDA, we test a new way to *weight and rank gambling harms* against those of other potentially harmful activities on a common metric. Whereas prevalence data describe the scope of harm, MCDA provides a structured comparison of its composition and magnitude.

MCDA achieves this by integrating qualitative experiences into a quantitative framework. A framework, such as our framework of harm, is used by a panel of experts to rate outcomes (in our case, harms) across a range of criteria. In this way, we are comparing "like with like" across different types of potentially harmful behaviours. This can show, for instance, whether the aggregate burden of gambling harm rivals that of alcohol or are closer to mid-range substances such as cannabis. It can also reveal which *types* of harm – financial instability, relationship breakdown, mental health decline – contribute most to gambling's overall burden. In doing so, MCDA offers a transparent, evidence-based means of weighting gambling harms against those from other potentially harmful behaviours, enabling proportionate regulation and for directing resources where they are most needed.

Historically, gambling has not always been considered as directly comparable to substance use. By comparing harms across components, this chapter helps ensure that responses (such as education campaigns, treatment services, and regulatory measures) are proportionate to the evidence of harm.

4.2 Research aims

The primary aim is to compare gambling harms against various substance related harms; including both legal (alcohol) and scheduled substances (cocaine, cannabis), by importing the MCDA approach to gambling studies. By using a single model of harm – i.e. our holistic framework (see Chapter 2) – alongside MCDA, we co-locate harms from gambling at three different tiers (low, medium and high harm gambling) against one substance previously assessed as medium harm (high risk cannabis use) and two previously assessed as high harm

substances (high risk cocaine and alcohol use). In this way, we integrate gambling alongside previous MCDA analyses on substance harms[156,157].

The harms are ranked by an expert panel, to create a model of harm from behavioural and substance harms, thus enabling a better understanding of what criteria have the biggest impacts on harm. The ultimate aim is to help inform decisions and appropriate targeting of policy, treatment, and regulation.

4.3 Summary of methods

MCDA is a structured approach to decision-making that evaluates options across multiple criteria (see[161]). Instead of making a judgement based on a single factor (say, financial cost or number of deaths), MCDA allows us to consider many factors together in a systematic way – described as a way to help decision makers handle issues with "many, conflicting objectives"[162]. It is a two-step process. First, the criteria (i.e. the harms) are established, alongside the options to compare (i.e. substances to compare). Second, the expert panel (in our case, comprising relevant researchers, lived experience, affected others, treatment providers and policy experts across alcohol, drugs and gambling) is convened to rank the harms by category and complete the model. This is managed in a specialised software, HiView, during a two-day expert-driven workshop.

Harms criteria to be assessed

The criteria for assessment were drawn from our Holistic Framework for Gambling-Related Harm (repeated below, Figure 4.1), where harm was therefore assessed across the three main components (wellbeing, resources, social) with the seven subcomponents (mental wellbeing, physical wellbeing, financial harm, ethical lapses, work and study, close relationships, and social connection). These were assessed for both harm to self and harm to others (which captured the impacts on both close and wider relationships).

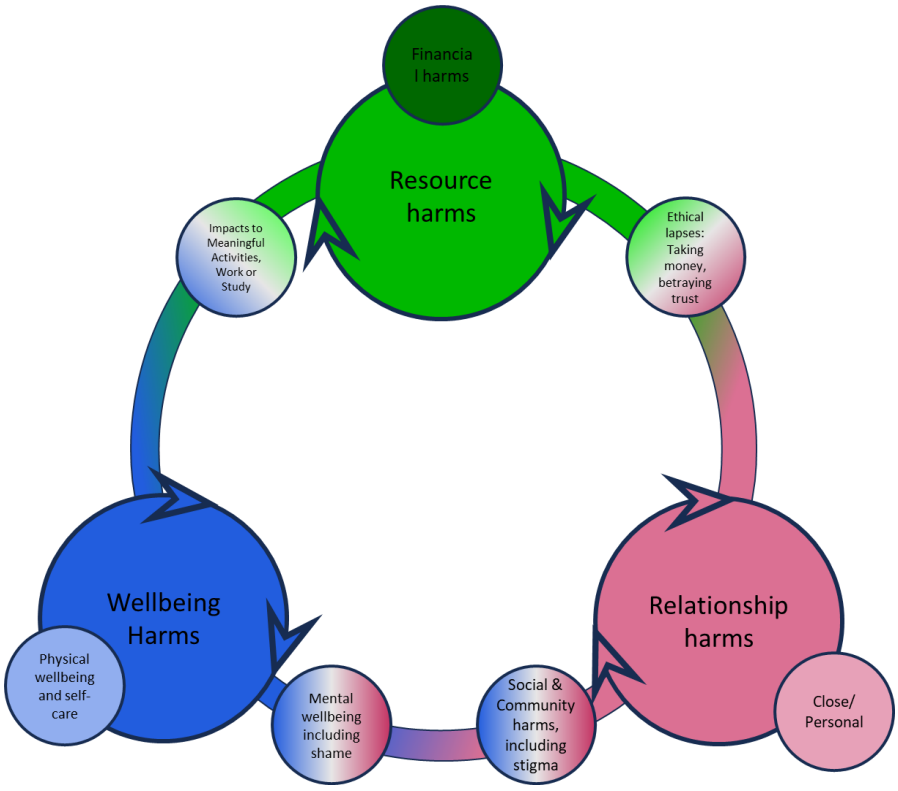


Figure 4.1. *The Holistic Framework of Gambling Related Harm represented the seven individual criteria assessed during the MCDA workshops, divided into three main components. These were assessed both as harms to self, and as harms to others.*

It is worth noting that our holistic framework for harm is similar to previous frameworks used to assess drug and alcohol related harm (e.g. see Figure 1 in[156,157]) – these also divided harms into physical, psychological and social harms, including sub-criteria such as loss of finances and tangibles, alongside family and relationship breakdown. Our harm framework can be readily superimposed against these earlier drug-related frameworks, providing validity that rationale comparisons can be made between gambling, drugs and alcohol.

Figure 4.2 shows how the harm criteria are constructed in HiView as a "value tree". This divides harm into harm to self and others, followed by the three main components, and the subsequent sub-components. Core components of harm are clustered under the core components of the holistic framework, which are in turn clustered under harm to self or harm to others.

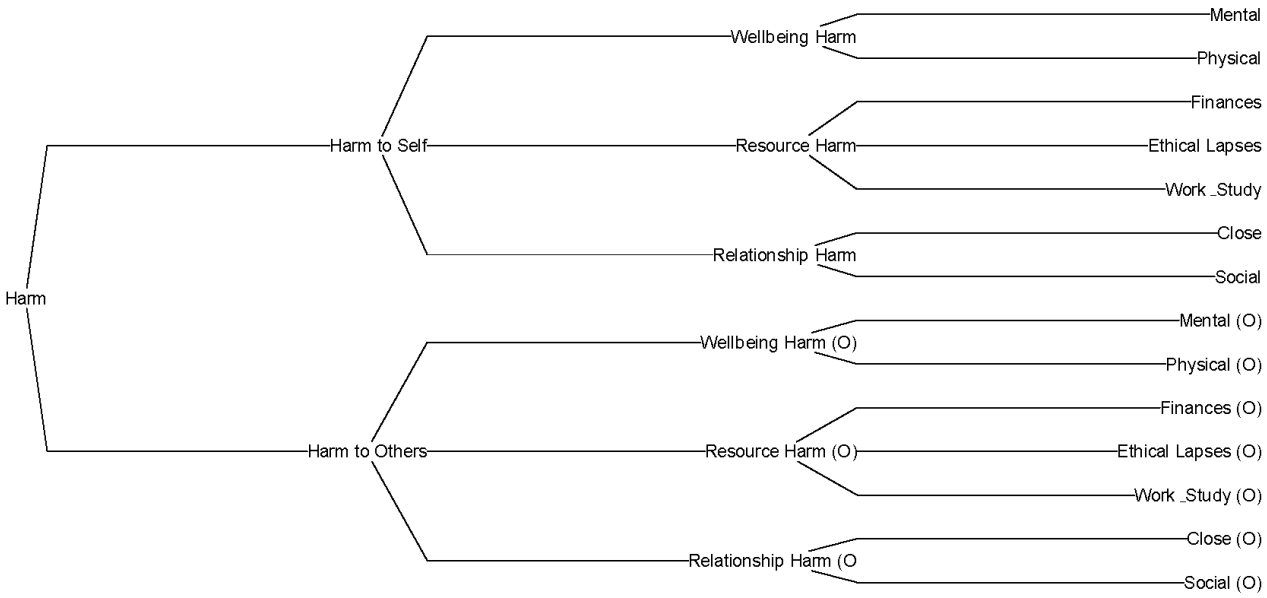


Figure 4.2. *Final "value tree" that participants completed. The right column details all 14 criteria or components of harm, seven as they relate to harm to self and a matched seven as they relate to harm to others (O). The other three columns represent the areas for "swing weighting" (assessing which areas are more important than others), moving left across the tree, panellists first weighted the core components (e.g. Wellbeing Harm), then the receiver of harm (e.g. harm to self), and finally overall harm.*

Substance/gambling options to be assessed

As the focus of the current work is on gambling-related harm, we compared gambling harms at three levels: low-risk gambling behaviour, moderate, and high-risk gambling behaviour. With substance harms, for pragmatic reasons, we limited the comparison to alcohol (legal, widely available, and deemed as the most harmful substance in previous work), alongside two illegal substances: cannabis and cocaine (the two most commonly consumed in Europe[163]). Drawing from previous MCDA of drug harms[156], cannabis was assessed as a medium harm substance, cocaine a high-harm substance. In this way, these other substances provide a "ladder" of harm for comparison against gambling.

MCDA workshop participants were presented with prevalence statistics and vignettes for each of these products, based on PGSI criteria (for gambling) or DSM-V (for substances; six or more criteria for high-risk, as defined by DSM-V), which provided a non-exhaustive example of how harm might manifest. Whilst we could have also used

DSM-V criteria for gambling, the PGSI thresholds are more familiar, enable stratification of gambling (i.e. low, medium, high risk) and are, anyhow, conceptually derived directly from the DSM criteria.

Participants made minor amendments to the options being compared, including clarifying substance definitions (for example, excluding crack cocaine, which is distinct from powder cocaine, and excluding skunk varieties of cannabis).
Harmful behaviours being compared:

- Low risk gambling.
    - Scores 1-2 on PGSI.
- Medium risk gambling
    - Scores 3-7 on PGSI
- High risk gambling
    - Scores 8+ on PGSI
- High risk cannabis use.
    - DSM-V criteria
    - Previously assessed as a moderate harm illegal substance.
    - We did not include selectively bred, high-potency varieties of “skunk”.
    - Did include harms from smoking with tobacco.
- High risk cocaine use.
    - DSM-V criteria
    - Previously assessed as a high harm illegal substance.
      Only assess powdered cocaine, not crack cocaine.
- High risk alcohol use.
    - DSM-V criteria
    - Previously assessed as a high harm legal substance.

MCDA Workshop participants
The MCDA panel was identified through purposive snowball sampling from the project steering committee, lived-experience advisory panels, treatment and service-delivery organisations and academic networks. The final panel comprised eight panellists with substantial and overlapping expertise spanning gambling, alcohol and drug-related harms. Collectively, the panel brought experience across research, pharmacology and drug policy, lived experience of harm (including across multiple harmful behaviours being compared), affected-other perspectives, treatment and service provision, and advocacy and policy development (Table 4.1).

Importantly, panellists were not selected to represent a single domain or substance. Most had more than a decade of experience across multiple harm contexts, for example: working in drug and alcohol treatment while also having lived experience of drug, alcohol and/or gambling harm; providing services across alcohol, cocaine and cannabis use; or conducting research and policy work spanning gambling, alcohol and illicit drugs. This cross-domain expertise was intentional, reflecting the aim of MCDA to integrate diverse but informed perspectives rather than rely on siloed disciplinary viewpoints.

The purpose of this composition was to ensure that harms were considered holistically and comparatively, drawing on experiential, clinical, policy and research knowledge across substances, thereby strengthening the robustness, balance and interpretability of the resulting harm comparisons.

Table 4.1: *MCDA panellists' expertise, all panellists were experts in at least two domains often more. Expertise was across gambling-related harm and at least one other product (e.g. gambling-related harm and alcohol use).*

Panellist	Expertise				
	Research	Lived Experience	Affected Other Experience	Treatment and Service Provision	Advocacy and policy
A		X		X	
B		X		X	
C	X		X		
D	X			X	
E	X	X	X	X	X
F		X		X	
G		X			X
H		X		X	X

Workshops: ranking the harms and completing the model

The MCDA model was created over a two-day workshop including all panel members. The meeting was facilitated by an independent expert in decision-making, policy, and government with a background in MCDA, to facilitate group discussion and enable effective group work, reducing bias where possible [164], for example by using the "think, reveal, discuss" process to avoid anchoring and groupthink [158].

Workshops progressed according to a three-stage process: scoring; swing weighting, and sensitivity analysis.

Stage 1: Scoring

Gambling, alcohol and drugs were scored across the different harm criteria (see figure 4.2) from 0 to 100, where an option scored 50 is half as harmful as one scored 100, etc. Each workshop participant initially made an independent assessment, before final scores were reached by discussion and consensus. In cases of strong disagreement, alternative scores were recorded for later sensitivity analysis.

Stage 2: Swing Weighting

Once each harm criterion had been scored, the panel undertook *swing weighting* to determine the relative importance of each type of harm. This process recognises that a change from "least to most harmful" is not equally significant across all criteria. For example, the difference between minimal and severe financial harm may be perceived as greater than the same difference in work or study impact. To capture this, panellists compared the "swings" in each domain, assigning the largest a value of 100 and scaling others proportionally. These weights were then applied to all scores, ensuring that the final model reflected both the *severity* and *relative importance* of each harm domain. In essence, swing weighting allows the model to balance how much each dimension contributes to overall harm, providing a normalised, internally consistent comparison across gambling and substance harms. Similar to the scoring, swing weighting was determined by consensus, but with any strong disagreements being noted and recorded for later sensitivity analyses.

Stage 3: Sensitivity Analysis

As a final stage, sensitivity analysis allows the model to be interrogated according to earlier disagreements in scoring or swing weighting and thus assess the robustness of the model to different weights[165]. A final model is

presented, ranking the harms across the various criteria, which is probed for sense making, analysed for sensitivity, and approved.

4.4 Results

See Figure 4.3 for an overview of the final rankings of harm, divided by harm to self-versus harm to other. At the aggregate level, moving from low to high harm, it can be observed that:

- Low-risk gambling scored lowest overall – although this does not mean it is harmless; rather it serves as an "anchor" for the lowest harm product that was being assessed.
- Medium-risk gambling was assessed at the same level of harm as high-risk cannabis use.
- While high-risk cocaine use had substantive harms, it was deemed slightly lower harm than high-risk gambling or alcohol.
- High-risk gambling and high-risk alcohol use emerged as the most harmful options.

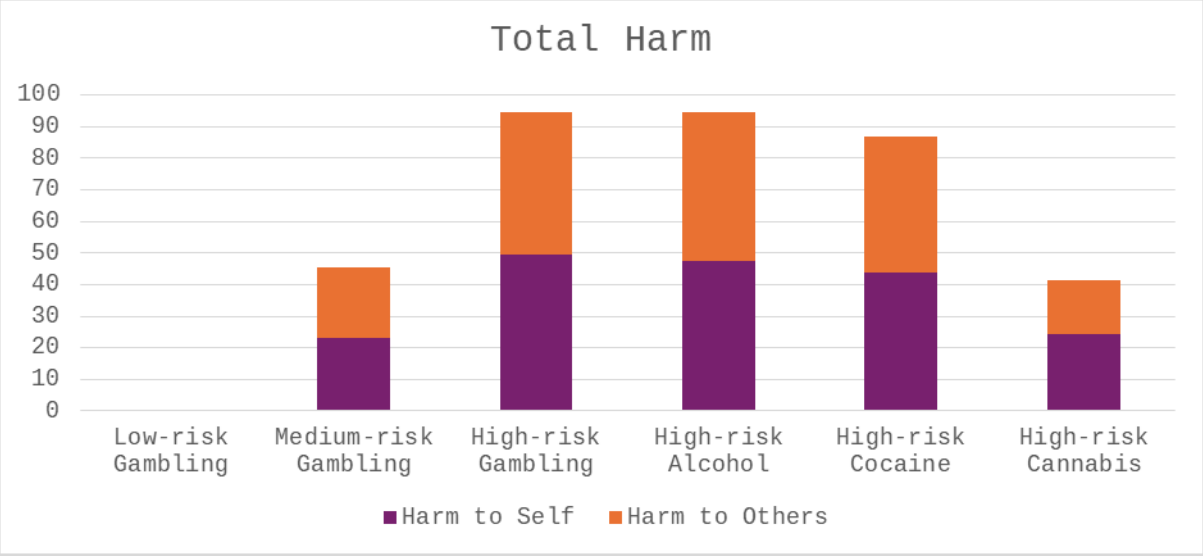


Figure 4.3. *Weighted, total harm scores, split by harm to self and harm to others (where self/others were given equal weighting). Low-risk gambling having a score of 0 does not indicate zero harm, but rather that it serves as an "anchor" for the least harmful product category.*

The model can also be examined for overall impact on the core components of harm (see Figure 4.4), Here, it can be observed that relationship harms are comparable for high-risk gambling and high-risk alcohol use, but resource harms weigh more heavily for high-risk gambling. Wellbeing harms weigh more heavily for high-risk alcohol use.

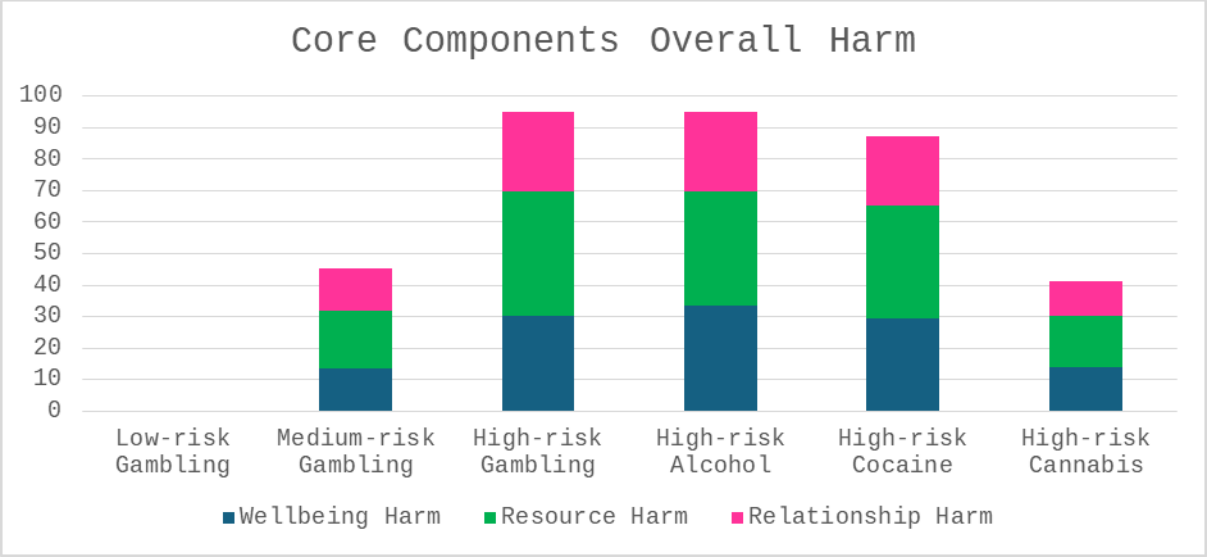


***Figure 4.4**. Weighted, total harm scores, divided by overall impacts to core components to harm. The harm to self and harm to others is pooled here.*

Harm categories can be further broken down into all 14 assessed components of harm. See Figure 4.5. Across the domains of harm, it can be observed that:

- Wellbeing (self): Physical health harms are highest for high-risk alcohol (with high-risk cocaine use also elevated).
- Mental health harms are moderately higher for high-risk gambling than for the other high-harm options (alcohol and cocaine).
- Resources. Financial harm is disproportionately large for high-risk gambling relative to high-risk alcohol use and high-risk cocaine use.
- For harms to others, the three high-harm options converge: high-risk gambling was judged to harm others to a similar extent as alcohol and cocaine.
- Medium-risk gambling and high-risk cannabis use show similar total harm but differ in composition: cannabis contributes relatively more to wellbeing (self), whereas medium-risk gambling contributes relatively more to close-relationship harms and others' mental wellbeing.

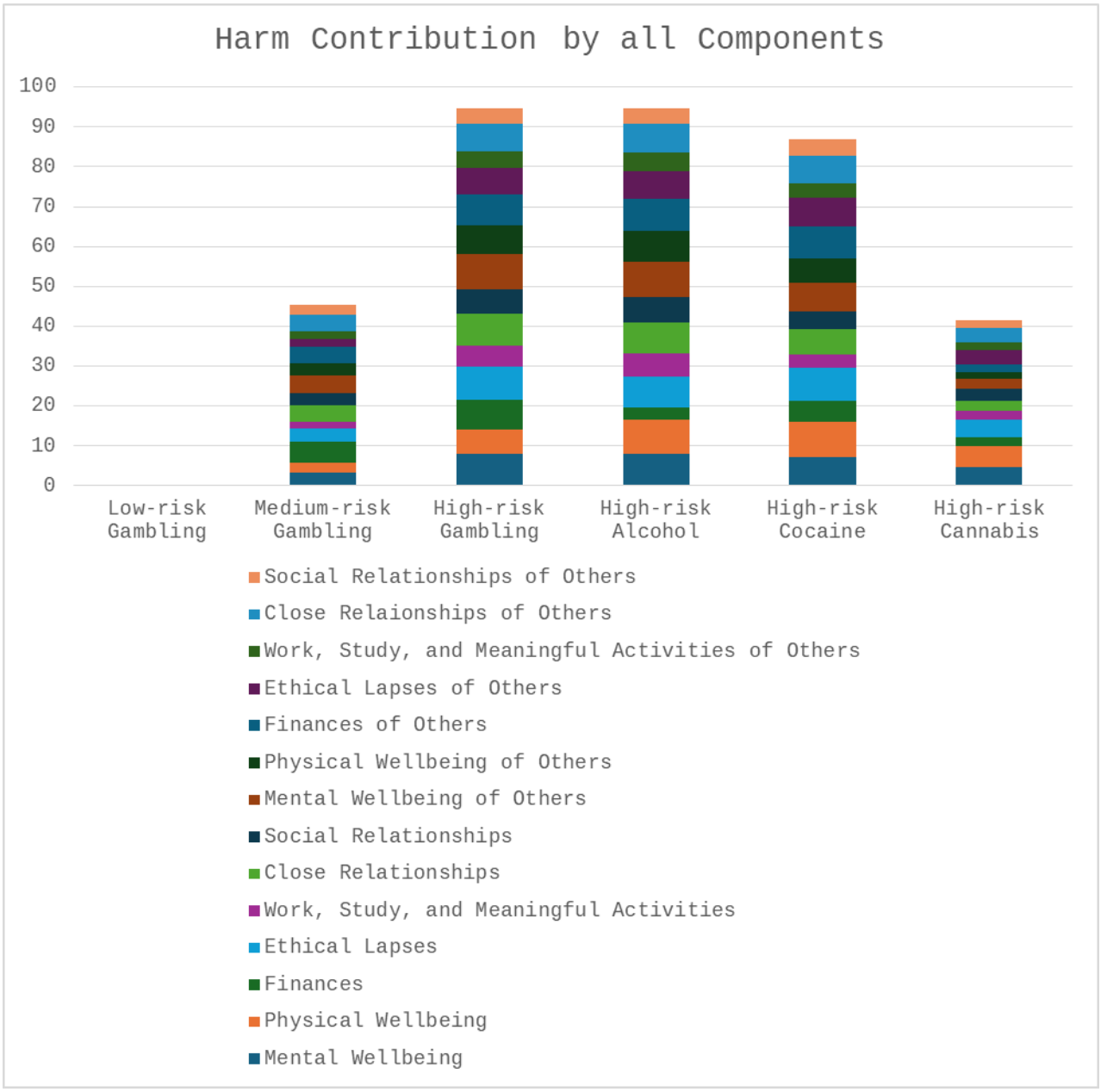


***Figure 4.5**. total harm scores for different behaviours, divided across all assessed harm criteria.*

Swing weighting – holistic harms versus physical harms

Swing-weighting enables a like-for-like comparison between overall weighted harm and any single component considered in isolation. As Figure 4.6 illustrates, substances dominate when focusing purely on physical health harms to self – where alcohol and cocaine rank highest. However, when harm is considered holistically – across self and others, and all domains – high risk gambling is approximately equivalent with alcohol and exceeds cocaine**.** In short: a physiology-only lens favours substances; a public-health lens that includes resources and relationships brings gambling into parity**.**

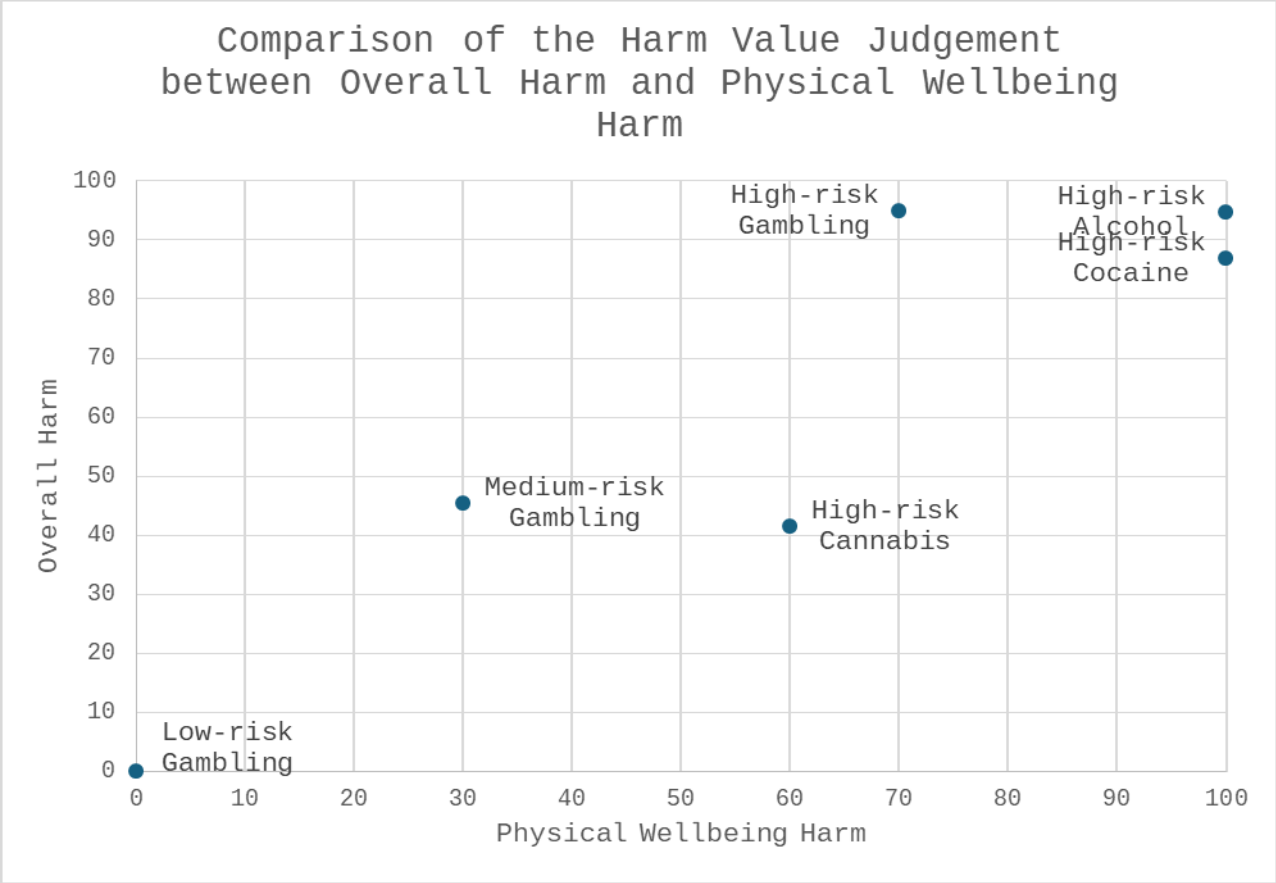


Figure 4.6: *Comparison of overall weighted harm (y-axis) vs physical wellbeing to self only (x-axis): substances dominate on the physical axis; gambling and alcohol co-lead on overall harm.*

Non-linearity across gambling risk levels

MCDA workshop participants initially queried the large step-up from medium- to high-risk gambling in total harm. Discussion attributed this to a non-linear transition, where rapid escalation in gambling (e.g., chasing losses after a large win/loss) can move individuals into the high-risk category, with markedly larger harms. The panel agreed this step change is real and policy-relevant, where the large contrast in harm reflects the escalation dynamics.

Sensitivity Analysis

The model proved highly robust to variation in both the scoring and swing-weighting stages. When areas of disagreement were reviewed, no plausible changes to the weightings altered the overall pattern of results: high-risk gambling use and high-risk alcohol use consistently occupied the top two positions (occasionally switching order), followed by high-risk cocaine. Likewise, medium-risk gambling use and high-risk cannabis use remained grouped in the middle tier, with only minor reversals depending on weight adjustments. Only large-scale adjustment to the weightings produced substantive deviations (e.g. see Figure 4.6), and overall, the rank order of harms remained stable across all reasonable weighting scenarios, underscoring the internal consistency and resilience of the model.

4.5 Discussion

This MCDA approach enabled a systematic, quantitative synthesis from a diverse, shared understanding of experts comprising research, lived experience, service provision and policy backgrounds. On a holistic account of harm, high-risk gambling was judged equivalent to high-risk alcohol and greater than high-risk cocaine overall. These harm criteria were derived from our empirically grounded framework (Chapter 2), refined through

extensive lived-experience and co-development, addressing concerns that MCDA criteria can be mis-specified or overly abstract[159,166]. As with all MCDAs, results reflect the explicit value trade-offs of the panel; we mitigated this via transparent weighting, consensus procedures, and robustness checks [158].

These observations synthesise and triangulate findings from across this report: the model of harm is derived from our Holistic Framework (Chapter 1), with harm rankings that are broadly aligned with the GHSI item severities (Chapter 2), and with health utility decrements, which similarly place high-risk gambling alongside high-risk alcohol[167] (Chapter 3).

It is worth noting that the empirical picture derived from our work is in stark contrast to public narratives – i.e. that drugs are much more harmful than gambling – and similarly, do not align with the disparate national policy approaches around drugs, alcohol and gambling. Here, our sensitivity analysis (see Figure 4.6) helps explain such juxtapositions. A traditional appraisal of harm – focusing primarily on physical harms – will foreground the harms of substances such as alcohol and cocaine. Conversely, modern biopsychosocial approaches, incorporating aspects like resources and relationships – and encapsulated within our Holistic Framework of Harm – now bring gambling harms into overall parity with alcohol.

Our work has important implications and provides a "proof of concept" for future studies with MCDA. The approach provides a practical platform for appraisal in gambling policy [e.g. 158], supports economic cases aligned with HM Treasury's Green Book[168], and complements consensus methods such as Delphi by adding structure, transparency, and an auditable narrative[169]. For instance, our findings highlight that future policy and clinical responses should target the highest-weight components in gambling – notably mental wellbeing (to self and others) and financial harms – rather than defaulting to physical-health proxies. Our workshops also highlight a non-linear escalation from medium- to high-risk gambling, with a sharp step-up in total harm – an observation with clear implications around the importance of prevention and early-intervention.

Finally, comparing gambling with drugs and alcohol carries symbolic weight. It sends a message that harm is harm, regardless of source – and that our concern for public wellbeing should extend equally to behavioural harms like gambling. The UK and many other countries are increasingly adopting a **public health approach to gambling**, treating it akin to other addictive behaviours. By placing gambling on the same analytical footing as substance misuse, we align with this modern perspective.

4.6 Limitations and future work

Our model relies on expert consensus to synthesise a model of harm across gambling and comparable substance related harms. While this model has been successfully deployed in the past[156,158] there are limitations with the subjectivity of expert judgement, even when structured through careful facilitation and swing-weighting procedures. We mitigated this through consensus-building, sensitivity analysis, and the inclusion of diverse expertise, as well as providing panellists with agreed vignettes derived from validated measures. The model represents harm at a single point in time for individuals at defined risk levels. This cross-sectional approach does not capture the dynamic trajectories through which harm accumulates. As panellists noted, the transition from medium to high-risk gambling can occur rapidly. Finally, for simplicity, our model assigns equal weight to harm to self and harm to others – a reasonable assumption, given earlier results (chapter 3) where partners experience decrements to wellbeing in a manner that closely tracks the person who gambles. Harms from gambling, however, ripple out further into families and social networks – where other, more nuanced weightings of harms to self versus harms to others could be investigated.

While MCDA has been extensively applied to substance use policy[156,158,159], our work serves as proof of concept in gambling harms research. Here, there is substantial scope for MCDA to inform policy decisions, evaluate harm reduction pathways and compare alternative regulatory options (e.g., stake limits, advertising restrictions, or product design interventions).

4.7 Conclusion

This MCDA demonstrates that when gambling harms are viewed through a comprehensive, public health lens, they are equivalent to high-risk alcohol use and exceed high-risk cocaine use. The disproportionate contribution of mental wellbeing and financial harms in gambling, alongside the rapid escalation from medium to high risk, identifies targets for prevention and early intervention. Overall, these findings challenge the traditional hierarchy that placed substance harms above behavioural harms, and instead confirms that gambling-related harm warrants the same policy attention, regulatory scrutiny, and resource allocation.

Overall, the full programme of work above – across all four chapters – triangulates lived experience, multidimensional measurement, health-utility benchmarking and structured expert judgement, converging on a single conclusion: gambling is not a lesser harm, a special case, or a peripheral concern. It is a major, preventable source of population-level damage that demands the same seriousness, scrutiny and investment afforded to alcohol and drugs.

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Appendix 1: GHSI and GHSI-AO

There are a number of versions of the GHSI available, for both people who gamble and affected others. These include shorter versions suitable for online and screening purposes, alongside a recovery-focused instrument. These can be found at: gamblingharms.org. The versions described in this report – the GHSI-10 and GHSI-AO-10 are provided for reference on the following pages.

GHSI-10:

The Gambling Harms Scale Initiative

Many people face challenges with gambling, and support is available.

Over the last 3 months, in relation to gambling, how often have you noticed changes in your...	**Not at all** (0)	**Occasionally** (e.g. once or twice a month) (1)	**Sometimes** (e.g. once or twice a week) (2)	**Frequently** (e.g. most days) (3)
...Mood and feelings. Such as feeling down, stressed, shameful or anxious.				
...Physical wellbeing. Such as eating poorly, losing sleep or being less physically active.				
...Day to day finances. Such as issues with paying bills, borrowing money or using up savings.				
...Hobbies, work and study. Such as losing focus, getting things wrong or missing work.				
...Family and loved ones. Such as tensions or being less involved with loved ones.				
...Social life and community connection. Such as feeling judged, stigmatised, lonely or cut off.				
...Secrecy. Such as hiding losses from loved ones or borrowing money without asking.				
...Significant financial worries. Such as feeling at risk of losing your home or worrying about large debts you can't pay.				
...Mental health and safety. Such as thinking about ending your life or hurting yourself.				
...Relationship stability. Such as talks of relationship breakdown or actual relationship breakdown with family, partners or close friends.				

[FINAL QUESTION BELOW NOT FOR ONLINE USE: For consultation only, please have safeguarding procedures in place]

Is there anything else about your gambling journey or its impacts that you'd like to share?

GHSI-AO-10:

The Gambling Harms Scale Initiative

Many people face challenges when someone close to them is gambling in a way that causes harm. Help is available.

Over the last 3 months, in relation to someone else's gambling, how often have you noticed changes in your...	**Not at all** **(0)**	**Occasionally** (e.g. once or twice a month) **(1)**	**Sometimes** (e.g. once or twice a week) **(2)**	**Frequently** (e.g. most days) **(3)**
...Mood and feelings. Such as feeling down, stressed, angry or anxious.				
...Physical wellbeing. Such as eating poorly, losing sleep or being less active.				
...Finances. Such as issues with paying bills, borrowing money, using up savings, or unexpected shortfalls.				
...Hobbies, work and study. Such as losing focus, getting things wrong or missing work.				
...Family and loved ones. Such as tensions and emotional distance from the person gambling, or impacts on other family members like children.				
...Social life and community connection. Such as feeling judged, stigmatised, lonely or cut off.				
... Lack of trust. Such as feeling like you are being lied to, or struggling to trust again.				
...Significant financial worries. Such as feeling at risk of losing your home, or worrying about large debts you can't pay.				
...Mental health and safety. Such as thinking about ending your life, or hurting yourself.				
...Relationship stability. Such as talks of relationship breakdown or actual relationship breakdown with family, partners or close friends.				

Thinking about this person, tick all that apply below:

[Y / N] They are still actively gambling.

[Y / N] They are seeking formal support for gambling, such as counselling.

[Y / N] They are making efforts to control gambling using blocking software or self-excluding from gambling operators.

[Y / N] I am still in contact with this person.


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