A Rapid Evidence Assessment of Gambling Treatment Services

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Contents

Funding Statement

GambleAware is a wholly independent charity and has a framework agreement with the Gambling Commission to deliver the National Strategy to Reduce Gambling Harms within the context of arrangements based on voluntary donations from the gambling industry. GambleAware commissions research and evaluation to build knowledge of what works in prevention and reduction of gambling harms that is independent of industry, government and the regulator.

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Executive summary

Background

This review is part of a larger project that seeks to investigate a variety of research questions, ranging from unmet need, demand, service-mix, barriers and facilitators to treatment for problem gamblers. Problem gamblers are identified as any individual suffering some kind of harm as a result of their gambling behaviour. The design of the overall project includes a multi-method approach with three work streams (WS): a Rapid Evidence Assessment (WS1); a secondary analysis of existing treatment and survey data (WS2), and qualitative narrative interviews with stakeholders and problem gamblers (WS3). The overall project seeks to provide:

- Rigorous and relevant evidence on unmet need, demand, treatment types, barriers and facilitators to treatment (and any population inequalities in access), the structures and processes that support all populations and are demonstrably effective and cost-effective;
- An understanding of what problem gamblers who are not covered by any treatment services perceive as an effective care pathway;
- An exploration of those populations that face further inequalities regarding service provision and/ or longer-term treatment;
- A set of implications and recommendations for GambleAware and other key policymakers and practitioners designing, commissioning and delivering treatment services for people experiencing harm from their gambling in the UK; and
- A set of priorities to inform the Advisory Board for Safer Gambling and GambleAware's strategic grant-making and fund-raising decisions over the next three to five years.

Findings from each work stream will be synthesized to provide robust and appropriate recommendations to support future developmental and funding strategies. The present study reports on the first part of the project, Work Stream 1, a Rapid Evidence Assessment that reviews published and grey literature.

Objectives

A Rapid Evidence Assessment was undertaken focusing on overarching treatment gaps, including: unmet need, demand, treatment types, barriers and facilitators to treatment, the structures and processes that support all populations, and are demonstrably effective and cost-effective.

Findings

- A total of 66 studies have been included in this review, providing underpinning data to support the research questions. In addition, a number of gaps in the existing evidence base were highlighted.

Size of problem gambling, geographical variations and level of demand of services

- A fundamental finding from this review, was that no studies were identified that estimated the total size of the problem gambling population not engaged in any form of treatment or support. The studies solely reported the size of the problem gambling population engaged in those treatments or support explored within the included research studies.

- As no-one study reported findings from nationally representative samples (identifying the size of the gambling problem), we are unable to assess the proportion of gamblers who are/ have been in receipt of any form of support.

- The lack of evidence on the size of the problem gambling population (and subsequently the population of problem gamblers who do not engage in treatment support) creates a gap in evidence regarding the geographical distribution/variations of the level of demand for treatment/support. Whilst there is no available evidence on geographical distribution of availability of treatment/support services, the evidence of the review indicates potential scarcity of services provided in remote and rural areas.

Demographic and health characteristics of problem gamblers not engaged in any form of treatment or support

- Following from the lack of findings regarding size of problem gamblers and subsequent engagement in any treatment/support, the review did not identify any studies providing evidence about the characteristics of those not engaged in any form of support or treatment. As many of these studies used purposive/ convenience sampling of problem gamblers, evidence was focused on the characteristics of problem gamblers.
- Problem gamblers were identified as having co-morbid physical and health problems. Whilst the evidence cannot support a causal effect, evidence suggests a bidirectional relationship (e.g. gambling problems leading to mental/physical health problem but also mental/physical health problems triggering problematic gambling behaviour).
- Studies have identified a link between smoking, problem gambling and life-long mental health comorbidities.

Outcomes related to treatment and support services

- Studies that evaluated the effectiveness of treatment/support services measured a diverse set of outcomes; some of which were directly related to gambling behaviour and some of which were proxies such as psychosocial wellbeing. All studies reviewed for this analysis indicate a decrease in psychological co-morbidities and an increase in psychological functioning as a result of treatments to reduce problem gambling.
- Studies reported treatment effects on participants' level of wellbeing, including loneliness, social isolation and life satisfaction. The positive outcomes resulted from the intervention led not only to an improved quality of life of the gamblers included in the treatment, but also to greater control of their gambling disorder and treatment compliance.
- The majority of relevant studies reviewed indicated that decreased levels of problem gambling were maintained at follow-up.

Pathways to treatment/support and barriers/enablers to such pathways

- A number of studies reported on referral pathways, falling into three categories: clinical, social, or charity referrals. The referral pathways identified in the studies were of a clinical nature.
- Most studies referred to the treatment pathway in the context of patients being 'recruited' to a service, where the 'service' concerned was an intervention being evaluated or measured as part of research study or trial. Patients were reported as

being recruited from those seeking treatment in a hospital, counselling centre or in-patient facilities.

- The studies reviewed presented evidence on barriers and enablers to using treatment services for problem gamblers. The evidence exists on initial access to services and on continuous use of services (including attendance for an appropriate number of therapy sessions, successful completions and dropouts). Barriers and enablers were found to fall into the following categories: personal (e.g. ill health or high level of education); therapeutic (e.g. group therapy sessions or online-based therapy); practical (e.g. time constraints or ability to access services online 24 hours a day); and social (e.g. perceived social stigma or positive role models).

Accessing aftercare

- The review did not identify any studies that assessed or discussed pathways to aftercare.

Conclusion

The studies reviewed identified a number of areas where the evidence-base is sufficient and where there is a notable lack of evidence. For example, there was a lot of evidence on pathways to care as well as those barriers and enablers to accessing treatment. Areas where the evidence base was markedly underdeveloped were studies identifying the size of the problem gambling population that is engaged in any treatment/support. Similarly, there was a lack of evidence regarding the characteristics of people *not* engaged in treatment/support as well as the geographical variations in demand. It is also worth noting that studies did not differentiate gamblers based on severity of their gambling problem (e.g. high, moderate, low risk gamblers). The main reason was because the samples used in the studies consisted of problem gamblers (e.g. high risk) who accessed services or support (or who needed treatment/support services). Therefore, findings are related to individuals who were identified as having a gambling problem and needed treatment or support.

Amongst other research questions, Work Stream 2 will be focusing on providing evidence in these areas where information is limited by using data from national surveys. Therefore, the secondary analysis of data will focus on identifying the size of the gambling problem population in general, as well as the size that is engaged (as well as not engaged) in any treatment/support and then explore geographical and demographic variations between problem gamblers who access and do not access such support. Work Stream 2 will also explore further the relationship between problem gambling and physical/mental health comorbidities and health behaviours, which is also an area that this review identified as particularly evident amongst problem gamblers.

Limited results were similarly returned concerning research into the cost effectiveness of treatment and support services as well as in the aftercare once support has been provided. These areas of investigation will be explored further through Work Stream 3. In particular, through qualitative interviews with care/support providers and other stakeholders involved in proving treatment/support, we will explore perceptions of cost-effectiveness and aftercare as well as perceptions on some of the results of this review relating to pathways to care, targeted treatment as well as any barriers and facilitators to accessing treatment. Barriers and facilitators to accessing treatment will also be explored in interviews with problem gamblers who do not access treatment/support services.

1 Introduction

This study is part of a larger project with an extensive range of research questions ranging from unmet need, demand, service-mix, barriers and facilitators to treatment and the overarching care pathway. The project involves a multi-method design with three work streams (WS): a rapid evidence assessment (WS1), the current study, and secondary analysis of existing administrative treatment data (GamCare) as well as the Health Survey for England (WS2). Our final work stream will be qualitative, interviewing stakeholders and those problem gamblers who have yet to come into contact with treatment provision (WS3).

The overall research seeks to provide:

- Rigorous and relevant evidence on unmet need, demand, treatment types, barriers and facilitators to treatment (and any population inequalities in access), the structures and processes that support all populations and are demonstrably effective and cost-effective;
- An understanding of what individuals perceive as an effective care pathway;
- An exploration of those populations that face further inequalities regarding service provision and/ or longer-term treatment;
- A set of implications and recommendations for GambleAware and other key policymakers and practitioners designing, commissioning and delivering treatment services for people experiencing harm from their gambling in the UK; and
- A set of priorities to inform the Advisory Board for Safer Gambling and GambleAware's strategic grant-making and fund-raising decisions over the next three to five years.

The present Rapid Evidence Assessment (REA) constitutes the findings from Work Stream 1, which will also feed into the other work streams. In particular, this review informs the focus of the secondary data analysis (WS2) and any necessary sub-group analysis. Similarly, this review guides the interviews with service users and stakeholders by focusing our topic guides on those findings and gaps that need further exploration. Findings from each work stream will be synthesized to provide robust and appropriate recommendations to support future developmental and funding strategies.

This REA provides an overview of the existing evidence. In addition, this review informs the focus of the secondary data analysis, the inclusion of specific datasets and any necessary sub-group analysis. Given the necessary short timeframe for delivery, we applied the REA method for collating, reviewing and synthesising the most up-to-date literature in the most efficient way.

1.1 The rapid evidence assessment: objective and research questions

The overall objective of this study is to conduct a rigorous and relevant evidence review on unmet need, demand, treatment types, barriers and facilitators to treatment (and any population inequalities in access), the structures and processes that support all populations and are demonstrably effective and cost-effective.

The REA focuses on the following research questions:

- What is the size of the problem gambling population that is engaged in any form of treatment or support?

- What are the characteristics of people not engaged in any form of treatment or support?
- What are the geographic variations in the level of demand for treatment and support of problem gamblers?
- How are problem gamblers referred for treatment and support?
- How do treatment and support services measure outcomes?
- How, if at all, is service access discussed or explored?
- What are the barriers to accessibility of treatment and support for problem gamblers (categorised by service type, demography, socioeconomic characteristics)?
- What mechanisms exist to maximise access to treatment and support?
- What mechanisms exist to maximise cost-effectiveness of treatment and support?
- Is aftercare available and accessible, who is it accessed by and what are the gaps in the aftercare services?

2 Methodology

2.1 Overview

This evidence review follows the methodology and structure of a REA[1]. This section summarises our criteria and processes for determining the inclusion of studies, data extraction, and the synthesis of findings. Published and grey literature (research publications produced by organizations outside of the traditional commercial or academic publishing) over the past 10 years were considered for inclusion.

2.2 Inclusion criteria

The aim of this REA is to identify gaps in provision of treatment and services for problem gamblers, including studies on barriers and facilitators to referrals, access, effectiveness and cost, as well as the extent of treatment and services in delivery and aftercare.

To be included, studies had to meet a number of inclusion criteria used at title, abstract and full text screening stages (see Table 1 in Appendix A). The criteria were developed from the research questions listed in section 1.1, alongside pre-agreed areas of interest (e.g., studies based in OECD countries only, studies in English).

2.3 Search strategy

A systematic search of relevant databases and evidence repositories for published and grey literature was undertaken. Search strings were developed for application in academic databases, and modified versions of the search strings were developed and used for evidence repositories. The search strings used for academic databases and evidence repositories are detailed in Appendix B.

Evidence was sourced from a search of electronic databases: EBSCOhost, Applied Social Sciences Index and Abstracts, Cochrane Library, Cumulative Index to Nursing and Allied Health Literature, Database of Abstracts of Reviews of Effects, and MEDLINE. The database search was supplemented with the search on the National Institute for Health and Care Excellence, Social Care Institute for Excellence, Health Foundation, Joseph Rowntree Foundation and King's Fund websites. This latter step supported the identification and acquisition of the harder to reach grey literature.

2.4 Screening and study prioritisation

Screening took place in three stages: (1) title (2) abstract and (3) full text. Screening tools were developed and piloted by the research team to promote inter-screener reliability. Rayyan software[2] was used to screen database results at the tile and abstract level. This software uses machine learning to prioritise studies based on

[1] A Rapid Evidence Assessment (REA) is a tool designed specifically for policy research for the government. REAs provide a more structured and rigorous search and quality assessment of the evidence on a policy issue than literature reviews, within the constraints of a given timetable. (e.g. see Davies et al. 2003. Rapid Evidence Assessment Toolkit; https://www.gov.uk/government/collections/rapid-evidence-assessments).

[2] Rayyan is a free web-tool designed to help researchers working on systematic reviews and other knowledge synthesis projects. See Ouzzani et al. (2016) for more detail about use and reliability of the software.

patterns of manual screening and allows a systematic screening of a certain proportion of those results returned from the mainstage search.

Studies identified as suitable for inclusion at full text screening were downloaded and screened using the above criteria (see Table 1, Appendix A).

2.5 Data extraction and synthesis

Data extraction was conducted using a data extraction template that was piloted and adjusted prior to use, to promote replicability and reliability of this review stage. The template contained themes drawn from the overarching research questions for this REA, each of which had been used to create the inclusion criteria and refine the review process. Each theme was effectively a component of a research question, against which data could be lifted from the evidence and summarised. After all relevant data had been extracted from the included studies, the results for each study were narratively synthesised against the research questions.

3 Results

3.1 Screening, prioritisation and inclusion

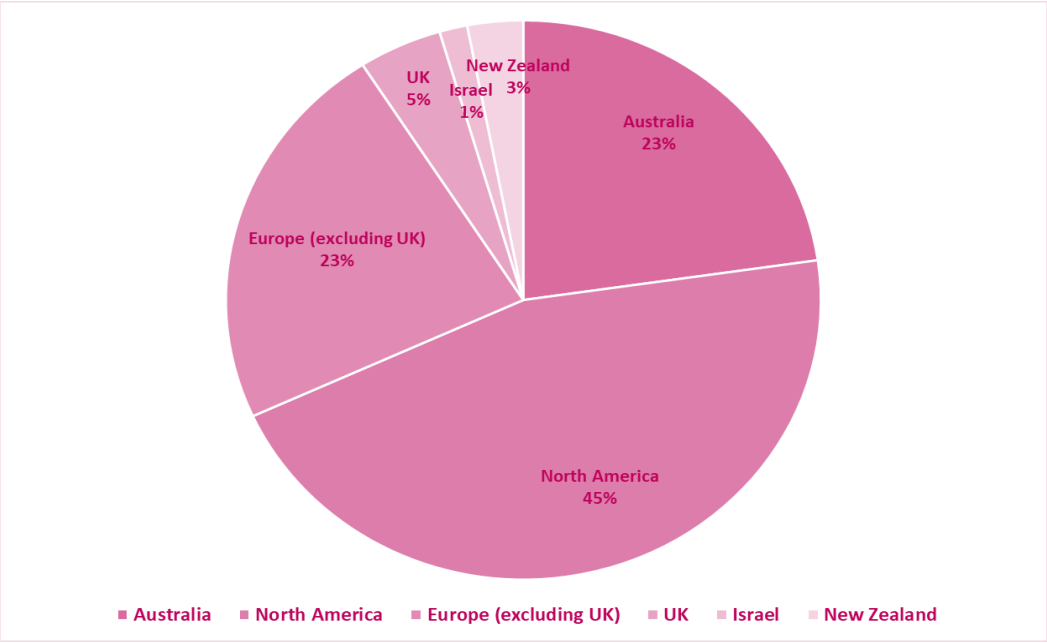
Owing to the need for an efficient REA process and in accordance with the protocol, three researchers manually prioritised 66 of the total 276 documents that met the criteria for inclusion. Studies were prioritised for inclusion based on the number of full text screening criteria they met (see Table 1, Appendix A). A score of one point was given to each criterion or criteria component met and tallied. All studies with a score of 11 and above (out of a maximum of 19 points) were prioritised for data extraction, which resulted in 66 studies.

The 66 studies prioritised were carried forward for data extraction and synthesis. A bibliography of all studies included in this review is provided in Appendix B. There were 10,649 unique results returned from the systematic searches across the chosen academic databases and websites. A total of 6,275 results were prioritised for screening at title and abstract using machine learning, of which 276 met the full text screening criteria. The PRISMA flowchart (Figure 1, Appendix A) summarises the REA's screening and inclusion processes.

3.2 Included studies: overview

The timeline limitations of this review resulted in the prioritisation of 66 of 276 includable studies for synthesis. The analysis of the results presented below, and the subsequent findings apply only to the 66 studies identified for synthesis. All statistical outcomes presented in the findings section have been rounded for uniformity. It is noteworthy that only 5% of identified studies took place in the UK. International studies were included where there was some evidence that the findings could be 'transferred' to the UK context (i.e., similar health and care environments) as well as ensuring, where possible, UK evidence gaps could be mitigated.

Figure 1: Studies identified for synthesis by geographic location



4 Findings

4.1 What is the size of the problem gambling population that is engaged in any form of treatment or support?

In total, 66 studies included the size of the problem gambling population. Each is presented in summary in Table 2, Appendix A These studies did not estimate the total size of the problem gambling population engaged in any form of treatment or support. One of the reasons for the lack of evidence is related to the study designs, i.e., only including those that were engaged in treatment. A further reason is related to the research questions that the studies are investigating. Studies focusing on the gambling population that is engaged in any form of treatment of support tend to use purposive, snowball (mainly in qualitative studies) or convenience sampling (mainly in quantitative studies) to test treatment effectiveness, pathways to care, etc. Instead, studies solely reported the size of the problem gambling population that was engaged in the treatment or support for which the studies were evaluating or reporting. The lack of evidence and future considerations are discussed further in the discussion of this report.

4.2 What are the characteristics of people not engaged in any form of treatment or support?

The study did not identify any studies focusing on characteristics of problem gamblers who were unengaged by treatment or support. Six studies used secondary data from treatment programmes (e.g., admissions records) to identify the characteristics of those already engaged in those treatment programmes. The summary of the studies identified for this section of the report is presented in Table 3, Appendix A.

Mental and physical comorbidities

In total, four studies were identified that focused on mental and physical comorbidities. The studies reported mental health and behavioural disorders (Weinstock et al. 2011), including alcohol-specific disorders, medical substances dependencies and illicit drugs, (Buchner et al. 2015), mood disorders, anxiety disorders and abusive alcohol dependency (Ramos-Grille 2013), as well as physical concerns including disorders of the digestive system; metabolic disorders, musculoskeletal conditions and disorders of circulatory and respiratory systems (Buchner et al. 2015). Similarly, individuals with problem gambling were reported to have high rates of tobacco use (Odlaug et al. 2013).

Demographic characteristics

One study identified reported on demographic (gender, age, marital status) and socio-economic (education and employment status) characteristics of primary (people with solely gambling addiction) and secondary gamblers (people who have a primary addiction to alcohol or drugs and secondary gambling addiction) (Jaimeson et al. 2011). The study found that primary gamblers tended to be male, married, employed and over the age of 40. Secondary gamblers tended to be male in their 30s, single and unemployed.

4.3 What are the geographic variations in the level of demand for treatment and support of problem gamblers?

The REA did not identify any studies that examined and/or discussed geographical variations in the level of demand for treatment and support of problem gamblers. Therefore, there is either no, or limited evidence, that can suggest variations in the level of demand for treatment and support for problem gamblers. A number of studies were identified that explored location and geography as a barrier to access and these are discussed in Section 5.6 (e.g. barriers to accessibility of treatment).

4.4 How are problem gamblers referred to treatment and support?

In total, 11 studies contain a description of traditional referral pathways to treatment. All studies used quantitative methods in investigating the effects of the treatment or support service on problem gambling. The referral pathways fell into three groups: clinical, social, or charity referrals. Most of the referral pathways identified in the studies were of a clinical nature. Table 4 Appendix A provides a description of the referral pathway to treatment and the of the interventions analysed. Studies discussing cases where patients self-referred or were recruited for the treatment or intervention are discussed in section 5.6. A summary of the themes that were identified and the number of studies for each theme is presented in table 4.4a below.

Table 4.4a. Source of referral and intervention used

Type of referral	Source of referral	Intervention/Number of studies
Clinical	Patient already part of a treatment or clinical trial	Drug therapy (1) Cognitive Behavioural Therapy (CBT) (2) Drug therapy and/or CBT (1) Comparison of characteristics of gamblers (1)
	Ambulatory services	Drug therapy (1)
	GP	CBT or control group (1)
	Consecutive	CBT plus exposure and response prevention therapy (1)
	No specific description of referral pathway	CBT and graded exposure therapy (1)
Social	Spouse or family member	CBT and CBT with significant other (1)
Charity	Referral to counsellor from help-line	Diagnostic assessment with counsellor (1)

4.4.1 Clinical referrals

Five of the nine studies reporting clinical referrals included patients who were already part of a treatment or clinical trial (Castren et al., 2015; Echeburua et al., 2011; Sanders and Peters, 2009; Schreiber et al., 2009; Jiminez-Murcia et al., 2015). The ambulatory services referrals reported on in one study (Dannon et al., 2011) led to referrals to a treatment clinic with expertise in treating gambling disorders. The study including referrals from a GP (Myrseth et al, 2009) explored CBT treatment at a university Department of Clinical Psychology. The study of consecutive referrals (Jiminez-Murcia et al., 2012) included assessment and outpatient treatment at a Pathological Gambling Unit in a hospital psychiatric department. The final study, which did not provide a specific description of the referral pathway (Morefield et al., 2013), was of patients admitted to an inpatient programme rather than an outpatient programme for several reasons: the patient was resident in a remote or rural area, reported being burdened with environmental stressors and distractions, or struggled with one or more comorbid psychological conditions.

4.4.2 Social referrals

One paper (Jiminez-Murcia et al., 2017) reported referrals to the treatment by a spouse or partner, parent, son or daughter, other family members, or friends. The study compared the outcomes of a CBT programme with a CBT programme involving a concerned or significant other (CSO).

4.4.3 Charity referrals

One paper (Weinstock et al., 2011) reported on an intervention whereby problem gamblers were referred to a counsellor by help-line clinicians on a charity-run gambling helpline. A standardised interview was used to assess whether a referral to a two-hour in-person diagnostic assessment was appropriate.

Studies discussing cases where patients self-referred or were recruited for the treatment or intervention are discussed in section 5.6.

4.5 How do treatment and support services measure outcomes?

In total, 21 studies described measuring effectiveness of treatment and support services for problem gamblers. Of these, 16 interventions used quantitative methods, one used qualitative methods and four were mixed methods studies. A summary of the themes that were identified and the number of studies for each theme is presented in Table 4.5a below.

Table 4.5a. Outcomes measured	
Outcome themes	**Outcomes/Number of studies**
Engagement/utilisation	Attendance of services (2)
Behavioural management	Coping and resilience (6)

	Motivation to initiate self-change (1) Frequency of participation in gambling activities and amount of money gambled (2) Abstinence (2) Gambling severity (6)
Changes in pathology at follow up	Depression, anxiety, pathological gambling (12)
Changes in subjective wellbeing	Loneliness and social isolation (5) Life satisfaction (2)

4.5.1 Treatment engagement and utilisation

A total of two studies used attendance and utilisation rates of the treatment as proxies of measuring effectiveness. In particular, regular attendance of counselling sessions and/ or making practical and effective use of the treatment (i.e. utilisation rate) were seen as evidence of effective treatment/support. Avery and Davies (2008) found that Gamblers Anonymous (GA) meetings were attended by nearly three-quarters of the sample (i.e. women only) during the study, whereas other treatment/support options (i.e. professional counselling) were attended by less than half of the sample. Similarly, Bucker et al. (2018) using utilisation rates in a baseline/follow up study, found that at the end of the intervention, completion rates were significantly higher in the control group (57%) compared to the intervention group (32%).

4.5.2 Management of gambling behaviour as a measure of effectiveness

A total of 17 studies reported on the effects of interventions on the management of gambling behaviour. In summary, six of these studies (Boughton et al., 2017; Oakes at el., 2012; Smith et al., 2018; Parhami et al., 2012; Piquette and Norman, 2013; Smith et al., 2010) included a description of the skills learnt by problem gamblers during the treatment which contributed to a decrease in gambling urges and improved self-control. One study (LaBrie et al., 2012) demonstrated that the treatment had been successful in helping the individuals initiate self-change and seek help. Two other studies (Boughton et al., 2017; Tse et al., 2013) included a description of the intervention's impact on reducing the frequency of participation in gambling activities, as well as the amount of money gambled. Six other studies highlighted an overall reduction in gambling severity post-treatment (Bucker et al., 2018; LaBrie et al., 2012; Najavits et al., 2013; Oakes et al., 2012; Oei et al., 2018; Parhami et al., 2012). Two studies included abstinence as a measure of treatment effectiveness (Parhami et al., 2012; LaBrie et al., 2012).

4.5.3 Changes in pathology, psychological functioning and psychiatric comorbidity at follow up as a measure of effectiveness

A total of 12 studies (Toneatto and Dragonetti, 2008; Myrseth et al., 2009; Carlbring et al., 2009; Carlbring et al., 2010; Echeburua et al., 2010; Oakes et al., 2011; Smith et al., 2010; Dannon et al., 2011; Najavits et al., 2013; Linardatou et al., 2014; Markman-

Geisner et al., 2015; Smith et al., 2015) reported on follow up gambling pathology and comorbidity measures following psychological and psychopharmacological treatments (e.g. CBT group and individual, motivational interviewing, drug intervention, etc). Findings from these studies showed a decrease in the levels of anxiety and depression as a result of the treatment, as well as fewer mental health issues among the gambling population studied. One study reported positive outcomes within a sample of pathological gamblers with Post-Traumatic Stress Disorder (PTSD). One of the studies, that measured the effectiveness of a drug treatment (Dannon et al., 2011) found that none of the participants improved at follow-up.

4.5.4 Changes in subjective wellbeing as measures of effectiveness

A total of 7 studies reported treatment effects on participants' level of wellbeing, including loneliness, social isolation and overall life satisfaction. Five studies identified that interventions for gambling behaviour helped participants to reduce feelings of loneliness and social isolation. For example, participants reported improvements in their relationships with their friends, their children, their neighbours and community (Avery and Davis, 2008; Jackson et al., 2012; Piquette and Norman, 2013). In addition, participants were able to increase their awareness that other people have similar difficulties (i.e. Hing and Nuske, 2012; Boughton et al., 2017). Similarly, one study (Linardatou et al., 2014) found significant improvements in sleep quality, daily routine and life satisfaction, whereas Parhami et al (2012) found improvements on self-reported measures of overall life satisfaction.

4.6 How, if at all, is service access discussed or explored?

In total, 37 studies were identified that investigated or discussed treatment and service access. Of these, 26 used quantitative methods, four used qualitative methods, and seven were mixed methods studies. A summary of the themes that were identified and the number of studies for each theme is presented in Table 4.6a below.

Table 4.6a. Service access route and type of referral

Service access route	Type of route/Number of studies
Recruitment to treatment or service	From existing counselling services (3) From gambling treatment/therapy centres (2) In-patient facilities (1) Online (1) Several routes (1)
Self-referral	Self-referral to any form of intervention or specific treatments (8) Self-referral from information gained through other problem gambling-related service (5) Self-barring as treatment (2)

4.6.1 Recruitment to treatment or service

Eight studies referred to the pathway to receiving treatment in the context of patients being 'recruited' to a service, where the 'service' is an intervention as part of a study or trial. In particular, patients were reported as being recruited from those seeking treatment in a counselling centre or group (i.e. Piquette and Norman, 2008; Myrseth et al., 2009; Jackson et al., 2013), gambling treatment/therapy centres (i.e. Gomes et al., 2009; Smith et al., 2009) or in-patient facility (i.e. hospital; Alvarez-Moya et al., 2011). Patients were also recruited from existing gambling treatment/services that operate via the web (i.e. Rodda and Lubman, 2014). Finally, Black et al. (2013) reported that treatment subjects were recruited in the course of a family study of problem gambling through a study registry, advertisements, meetings of Gamblers Anonymous, and word of mouth.

4.6.2 Recruitment through self-referral

A total of 15 studies discussed self-referral by patients. Studies reporting on the self-referral process often encompassed both the precipitating event or 'push' that caused the problem gambler to seek help, as well as the means by which this help was explored and ultimately accessed. In some cases, the service or treatment detailed in the paper was the primary instance of help sought by the individual, for example calling a helpline or responding to an advert. In other cases, the service detailed was secondary to some other advice, support or service already being accessed by the problem gambler, such as counselling.

Studies discussed self-referral in two ways. Firstly, self-referral was discussed in relation to any form of intervention or specific treatments (Carlbring et al. 2010) including inpatient facilities (Jamieson et al. 2011). A number of studies detailed the way in which problem gamblers accessed treatment after first seeking help or support through other gambling related treatment/help services (Najavits et al., 2010; Oakes et al., 2012), problem gambling helplines (Kim et al., 2016), counselling centres and inpatient treatment facilities (Buchner et al., 2015) and/or adverts on gambling problem websites and internet forums (Broughten et al., 2016; Backer et al., 2018).

Secondly, self-referral was discussed in relation to those who participated in self-barring programmes. Self-barring is a type of self-exclusion for those that have decided that they wish to stop gambling for at least six months and wish to be supported in their decision to stop (Gambling Commission 2019) [3]. For example, Hing et al. (2012) found that gamblers learnt about self-barring from a counsellor, written information at the venue, a gambling helpline, family, friends and from venue personnel. Similar results were reported by Nelson et al., (2010), which demonstrates an example of the two-tiered approach from initial help seeking to the type of the treatment option (in this case self-barring) ultimately accessed.

[3] https://www.gamblingcommission.gov.uk/for-the-public/Safer-gambling/Self-exclusion.aspx.

4.7 What are the barriers to accessibility of treatment and support for problem gamblers?

4.7.1 Barriers to initial access to treatment

In total, 25 studies discussed barriers to initial access to treatment and support for problem gambling. Of these, 20 studies discussed personal barriers, 4 practical barriers; and four discussed social barriers. The summary of the studies reviewed is presented in Table 5 (Appendix A).

Personal barriers
A total of 20 studies explored personal barriers to initial access to treatment for problem gambling. Of these, four studies highlighted personal barriers from a theoretical perspective but did not offer any empirical data on the topic. Of the remaining 16 studies, 11 were quantitative studies, three were qualitative studies and two were mixed methods studies.

The studies discussed such personal barriers as the lack of information and knowledge about problem gambling and services available; perceived stigmatisation and shame associated with problem gambling; comorbidities and other dependencies (e.g. alcohol); perceived lack of confidentiality in treatment services; family commitments; denial of gambling problems.

Practical barriers
Of the 14 studies that discussed practical barriers to initial access to treatment for problem gambling, seven presented theoretical contributions to the topic but did not contain relevant empirical data. Four of the empirical studies were quantitative studies, two were qualitative, and one was a mixed methods study.

The studies identified distance to services, family commitments (especially for women), lack of information and appropriate signposting by clinicians and social services, and insufficient capacity of treatment services as the main practical barriers to accessing services. The seven studies that presented theoretical contribution, identified that those potential practical barriers to accessing treatment for problem gambling are likely to include: the availability of treatment; the cost of treatment; distance from the treatment service; bed availability; waiting lists; family commitments; work commitments; an intensive treatment design; and form-filling requirements in treatment sign-up.

Social barriers
In total, four studies were identified that discussed social barriers to initial access to treatment for problem gambling. Two of these studies were qualitative studies and two were quantitative studies. The findings from the studies were seemingly in direct contradiction to each other, identifying that participants' barriers to accessing treatment included both family relationships as well as being single. While people in partnerships (especially women) reported having to 'invent' or 'excuse' their absence when accessing services (Piquette-Tomei et al. 2008), those single participants' were more likely to not attend initial treatment owing to lower levels of social support (Ronzitti et al. 2017). Public stigma was also listed as a social barrier for accessing treatment (Kaufman et al. 2017; Hodgins et al. 2009).

4.7.2 Barriers to continuing access to, and engagement with, treatment

Seventeen studies were identified as discussing barriers to continued access to, and engagement with, treatment for problem gambling. Of these, 12 discussed personal barriers, five therapeutic barriers, three highlighted practical barriers and one outlined social barriers.

Personal barriers
Of the 12 studies that discussed personal barriers to continuing access to and engagement with treatment, 10 were quantitative and two were mixed methods studies. The studies identified that the main barriers included ill-health among women, younger age and associated impulsivity, smoking, work status (unemployment), low level of education, distance to services, and lack of motivations. In addition, higher levels of neuroticism and lower levels of agreeableness and conscientiousness were identified as barriers to continuing treatment.

Therapeutic barriers
Of the five studies that discussed therapeutic barriers to ongoing engagement with treatment for problem gambling, four were quantitative studies and one was a mixed methods study. The studies identified that the main barriers for successfully completing or attending a sufficient number of therapy sessions were: lengthy therapy sessions, group session format, addition of exposure and response-prevention therapy to CBT-based therapies, the lack of rapport with therapists and imaginal therapy techniques.

Practical barriers
Practical barriers to continuing access to and engagement with treatment were discussed by three studies. Of these, two were quantitative studies and one was a mixed methods study. The studies discussed difficulty travelling to therapy and time constraints as the main barriers for successful completion of treatment.

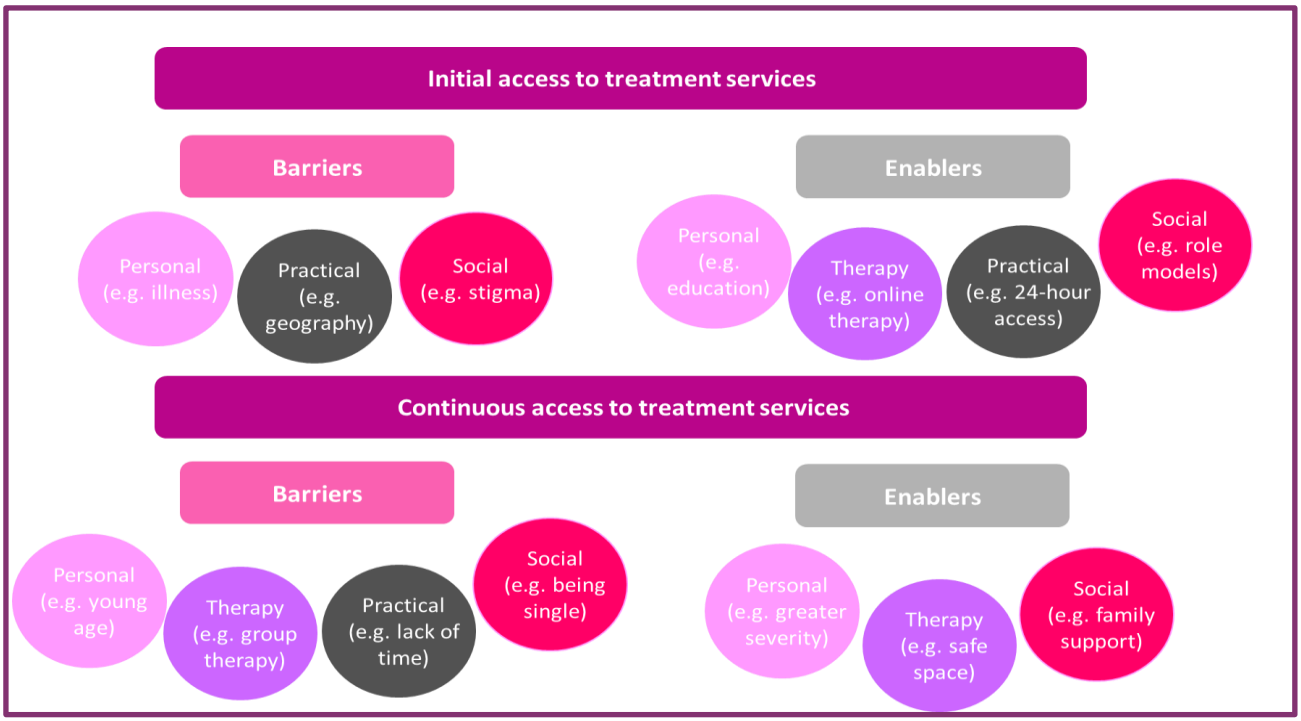
Social barriers
Social barriers to ongoing engagement with treatment for problem gambling were discussed by one quantitative study. Ronzitti et al. (2017) suggested that those who have never married may enjoy less social support and consequently be more likely to drop out of treatment. The authors also found that in-treatment dropouts, compared with treatment completers, were more likely to have a family history of gambling disorder.

4.8 What mechanisms exist to maximise access to treatment and support?

4.8.1 Enablers of initial access to treatment

In total, 28 studies were identified that discussed enablers of initial access to treatment and support for problem gambling. The summary of the studies reviewed is presented in Table 6 (Appendix A). Figure 2 illustrates the barriers and enablers to treatment services reviewed.

Figure 2: Summary of barriers and enablers to accessing treatment services



Personal enablers

Of the 14 studies that included personal enablers of initial access to treatment for problem gambling, one study explored the topic from a theoretical standpoint but did not provide any empirical insights. This study will be discussed at the end of the present subsection. Of the remaining 13 studies, 12 were quantitative studies and one was a mixed methods study.

The studies identified such demographic characteristics as being male and being divorced as important personal enablers to seeking treatment. The studies had conflicting evidence on socio-economic status being an enabler to seeking treatment. While some studies identified higher socio-economic status as an important driver, other studies found that lower socio-economic status was an enabler. The studies also named a range of negative gambling-related outcomes (e.g. difficulty functioning, loss of employment) as important enablers to seeking treatment.

The sole study that explored the present topic from a theoretical perspective underscored hope of recovery and confidence in the treatment service as likely personal enablers to accessing treatment (Tse et al., 2013).

Therapeutic enablers

Therapeutic enablers of initial access to treatment for problem gambling were discussed in nine studies. Of these, five studies explored the topic from a theoretical perspective but did not advance relevant empirical data. Those studies will be discussed at the end of the current subsection. In relation to the remaining four studies, three were quantitative studies and one was a mixed methods study. These will be discussed below.

The studies listed certain therapeutic styles as important in enabling access to treatment. Those emphasised included enhanced motivation and self-help, as well as confidentiality and online-based treatments. The five studies that made theoretical contributions identified a range of potential therapeutic enablers to accessing treatment. These included: confidentiality; evidence-based treatment practice; the anonymity and low entry threshold of Internet-based treatment; familiarity of young

people with Internet technology; and, the privacy afforded by telephone interventions (Bücker et al., 2018; Gainsbury et al., 2014; Parhami et al., 2012; Rodda & Lubman, 2014; Tse et al., 2013).

Practical enablers
Of the 17 studies that discussed those practical enablers in maximising initial access to problem gambling treatment, 10 presented theoretical contributions to the topic but did not examine it empirically. Those studies will be discussed at the end of the present subsection. Of the remaining seven, four were quantitative studies, two were mixed methods and one was a qualitative study.

Those studies reviewed identified that important enablers of accessing treatment to be availability of services (mainly through provision of online services and 24-hour access services), information about services, local service providers and local points of contact (including those that reflected minority ethnic populations), more treatment centres and greater visibility of treatment services.

Those studies that theoretically explored this area put forward a range of potential practical enablers to initial access to treatment, including: the establishment of more treatment services; the availability of culturally sensitive services; the accessibility of online and telephone treatment interventions; optimising treatment sign-up processes by reducing the amount of information required and deploying motivation enhancement techniques; public awareness campaigns about problem gambling and treatment options; targeted advertising of treatment services; more provision of information on problem gambling and treatment options; training for health professionals, debt advice agencies and community contact points on identifying problem gambling and treatment options; and routine assessment of gambling behaviours in psychiatric assessments (Bücker et al., 2018; Buchner et al., 2015; Dunn et al., 2012; Echeburúa et al., 2011; Gainsbury et al., 2014; Kaufman et al., 2017; Nash et al., 2018; Oei et al., 2018; Parhami et al., 2012; Tse et al., 2013).

Social enablers
Social enablers of initial access to problem gambling treatment were discussed by seven studies. Of these, two studies made theoretical contributions to the topic but did not present any relevant empirical data. Of the remaining five studies, three were quantitative studies and two were mixed methods studies.

The studies emphasised the enabling role of role models, family pressure and pressure coming from spouses and friends, as well as the importance of referrals from professionals. The two studies that did not provide empirical data on the present topic, but discussed it from a theoretical perspective identified concerned significant others and the de-stigmatisation of problem gambling as potential social enablers to initial access to gambling treatment (Buchner et al., 2015; Jiménez-Murcia et al., 2017).

4.8.2 Enablers of continuing access to, and engagement with, treatment

A total of 20 studies were identified that discussed enablers of continuing access to, and engagement with, treatment and support for problem gambling.

Personal enablers
Of the four studies that discussed personal enablers of continuing access to, and engagement with, problem gambling treatment, two were quantitative studies, one was a mixed methods study and one was a qualitative study.

The studies identified the following enablers to continuing accessing therapy services: greater gambling problems, prior involvement with gambling services, feelings of belonging and being accepted and all-female therapy groups for female gamblers.

Therapeutic enablers

A total of 15 studies were identified that explored therapeutic enablers to continuing access to, and engagement with, treatment for problem gambling. Of these, nine studies presented theoretical ideas on, but did not empirically examine therapeutic enablers. Those studies will be discussed at the end of the present subsection. Of the remaining six studies, two were mixed methods studies, two were quantitative studies and two were qualitative studies.

The studies specified the following enablers to continuous accessing of treatment services: certain therapy techniques such as using work books, journalising and CBT; complex treatment services, not only focusing on gambling; safe space (and emphasised the role of group facilitators in creating it); and group format of treatment.

The nine studies that made theoretical contributions but did not provide relevant empirical data identified the following potential therapeutic enablers to continuing access to treatment: integrated programmes including pharmacotherapy and psychosocial treatments; motivational enhancement techniques aimed at increasing motivation to change and treatment compliance; a reassuring atmosphere in treatment; individual therapy rather than group treatment for those at risk of treatment withdrawal; the imparting of selected strategies to maximise the impact of specific treatments (such as cognitive strategies for inhibitory control); treatment that meets the specific needs of particular populations (for example, therapy for women should be contextually sensitive, taking into account the challenges that affect them); a holistic treatment approach; structured daily sessions; constant supervision in treatment; and treatment delivery in an environment in which distracting everyday stressors and gambling triggers were removed (Echeburúa et al., 2011; Jiménez-Murcia et al., 2015; Jiménez-Murcia et al., 2013; Kaufman et al., 2017; Knezevic et al., 2012; Morefield et al., 2014; Ramos-Grille et al., 2013; Ronzitti et al., 2017; Smith et al., 2018).

Social enablers

In total, six studies were identified that discussed social enablers to continuing access to, and engagement with, treatment for problem gambling. Of these, two studies discussed social enablers from a theoretical standpoint, but did not present any relevant empirical data. Those studies will be discussed at the end of the present subsection. Of the remaining four studies, one was a quantitative study, two were mixed methods and one was a qualitative study.

Support from significant others and relationship of trust and support established with other service users have been named as the most important social enablers to continuous access to treatment services. Of the two studies that explored the present topic from a theoretical perspective but did not offer any relevant empirical data, Buchner et al. (2015) proposed that engaging concerned significant others in a treatment plan could demotivate problem gamblers to engage in treatment. However, Jiménez-Murcia et al. (2015) highlighted that the involvement of a family member in problem gambling treatment could be appropriately managed; mitigating any deleterious impact on treatment response.

4.9 What mechanisms exist to maximise cost-effectiveness of treatment and support?

In total, three studies discussed the maximisation of the cost-effectiveness of treatment and support for problem gambling; two of which took place in USA (Parhami et al.,

2012; Geisner et al., 2015) and one in Australia (Oei et al., 2018). All these studies used quantitative methods. However, they each made conceptual contributions to this research question without presenting empirical data. In each of these studies, cost-effectiveness was linked to a targeted use of resources that either delivered support in an efficient way (a brief intervention, a telephone helpline), or allowed resources to be diverted to more severe problems (self-help programs for less severe gambling allowing resources to be focused on gamblers with more complex problems). However, without empirical data on the success of these interventions, it is not possible to draw definitive conclusions about their cost-effectiveness.

4.10 Is aftercare available and accessible, who is it accessed by and what are the gaps in the aftercare services?

4.10.1 Gaps in aftercare

The screening criteria for studies discussing gaps in aftercare provision for problem gamblers were fulfilled by one quantitative study. The study made a conceptual contribution to the area and did not provide any relevant empirical data. Ledgerwood et al. (2017) highlighted that residential and intensive outpatient programme treatments temporarily remove gamblers from their natural environment. The authors argued that, accordingly, aftercare is a requisite if gamblers are to effectively transition into their home environment where gambling cues will be present.

4.10.2 Barriers to aftercare provision

In applying the screening criteria for studies discussing barriers to aftercare provision for problem gamblers, no studies were returned.

5 Discussion and conclusions

The studies included in this REA cover a range of treatments, services and provisions for problem gamblers across different countries. A total of 66 studies on primary studies were included in the review with rigorous inclusion criteria throughout to ensure applicability to the overarching research questions.

The number of studies found in each area of investigation was variable and reflective of the broad research present in the evidence base. Barriers and enablers to access to treatment for problem gamblers were well scoped and developed in the findings, with 53 studies included in these themes. Areas where the evidence base was markedly underdeveloped were studies identifying the characteristics of people not engaged in treatment or services (n=0), studies investigating geographical variations in the demand for treatment and services for problem gamblers (n=0), and studies exploring the type and extent of necessary service/ treatment aftercare (n=0). Limited results were also returned concerning research into the cost effectiveness of such treatment and services (n=3). There was also a lack of distinction between different levels of risk (or severity of gambling problem). In particular, no studies reported any characteristics, treatment needs and levels of support for moderate or low risk gamblers. Studies focused on populations identified as having a gambling problem and needing treatment/support. Therefore, there is a notable lack of evidence on all the areas that this review focused (e.g. characteristics, needs, treatments, etc) in relation to level of risk of severity of gambling problem.

Although results in these areas are low, we cannot conclude that there is no relevant evidence for these areas of interest. A focused systematic review into these specific areas may return some evidence. However, we can conclude from the present study that any evidence emerged would be limited. The following section discusses some of the most important results and identifies those evidence gaps found in the studies regarding treatment and service delivery for problem gamblers.

5.1 Effective pathways to accessing treatment

The evidence suggests that helplines are one of the most effective pathways to accessing treatment. However, the evidence is less clear on how patients identified any initial service or intervention (e.g., through peer referral and/ or on-line exploration of what support may be available). Where this was reported, it was detailed that callers who self-referred to a community-based telephone-delivered gambling treatment programme, found out about the service through a broad range of approaches. These included advertisements, newsstudies, television shows, referral sources such as family members, the Internet, community agencies and outreach events.

It is worth noting that self-referral to specific initiatives (or increase in the numbers self-referring) can be dependent on state or country-wide policy implementation. Where self-barring was the service/treatment being applied, the events and influences (the ‘push’) that led to the decision to self-bar, were more widely reported as part of the ‘route to access’. It could be argued that in this case, the ‘treatment’ being administered was self-imposed and that those factors pertaining to individual decision making (such as interpersonal relationships or financial issues) are relevant to how self-barring became a viable or necessary option.

5.1.1 Barriers to accessing treatment

In exploring those barriers to initial access to and engagement with treatment for problem gambling, the evidence highlights a range of factors including negative emotions (e.g. shame/embarrassment), lack of awareness, comorbidities (e.g. substance abuse), confidentiality issues and demographic characteristics (e.g. being younger and being female). A number of practical barriers that were also identified related to lack of awareness and/or availability regarding problem gambling and treatment services (including culturally sensitive services), financial costs, time constraints and perceived omissions amongst healthcare professionals to diagnose and signpost to appropriate treatment services. Finally, public stigma, barriers connected to interpersonal relationships and, being single all represented social barriers to initial access to treatment.

In relation to engagement with treatment for problem gambling, personal barriers highlighted by the empirical studies include personality dimensions (e.g. impulsivity, higher neuroticism, etc); illness and demographic characteristics (e.g. younger age, lower educational level, unemployment, etc). The evidence regarding gambling severity as a personal barrier to engagement with treatment appears to be mixed. Therapeutic barriers included aversion to group treatment; therapy involving exposure and response prevention, lengthy treatment interventions and disruption to the relationship between the patient and the therapist. Travel difficulties, distance from treatment and time constraints reflect practical barriers. Having a family history of gambling disorder, and not having a partner, represent social barriers.

5.1.2 Enablers of effective treatment

In assessing those enablers of initial access to and engagement with problem gambling treatment, the evidence highlighted a number of areas as likely to be effective. These included demographic characteristics (e.g. being male, having a greater income), more severe gambling problems, negative consequences flowing from problem gambling, (e.g., financial, legal and relationship issues), positive attitudes to treatment and readiness and motivation to change. Furthermore, whereas public stigma was highlighted in the empirical studies as a social barrier to initial access to treatment, self-stigma, which denotes the internalisation of public stigma, was identified as a personal enabler to initial access.

Enablers were further found to be grouped around three specific areas: therapeutic, practical and social enablers. Those therapeutic enablers that were found to be effective included motivational enhancement therapy, self-barring from gambling establishments, a combination of individual therapy and psychiatric medication and online treatment delivery. Practical enablers that were found to be effective encompass the availability of appropriate and specialised treatment services for problem gambling (including culturally sensitive services), flexibility (e.g. treatment options that accommodate patients' daily commitments), publicly available/accessible information and treatment and low-cost treatment options. Finally, those social enablers of treatment engagement identified in the empirical studies included informal and professional support systems in treatment and recovery, the involvement of a concerned significant other in treatment, encouragement from others to engage with treatment, and positive relationships with fellow attendees at group counselling.

5.2 Treatment outcomes and effectiveness

Studies that evaluated the effectiveness of treatment/support services measured a diverse set of outcomes, either directly related to gambling behaviour or indirectly through proxy psychosocial and lifestyle indicators such as subjective wellbeing; including loneliness, social isolation and life satisfaction. The majority of relevant studies reviewed indicated that decreased levels of problem gambling were maintained at follow-up. Whilst treatment effectiveness was out of the scope of the present review, the majority of the studies included in this REA looked at a range of treatments and outcomes that could be applied to reduce problem gambling and achieve abstinence, improve quality of life and help gamblers with comorbidities. All studies reviewed for this analysis indicated a decrease in psychological co-morbidities and an increase in psychological functioning as a result of treatments to reduce problem gambling.

Overall, evidence from the studies showed that psychological or talking therapies (e.g. CBT, MI) were more effective than drug treatments alone in improving outcomes. Psychological therapies were also more effective in improving mental health conditions (e.g. anxiety, depression, PTSD) and psychosocial outcomes (e.g. social isolation, subjective well-being), which are related (or can be by products of) gambling behaviour. It needs to be noted that interventions aimed at helping problem gamblers with co-morbid conditions (e.g. schizophrenia, PTSD, depression or anxiety) are more effective if they combine a greater number of treatment modalities (e.g., combining CBT with psychopharmacological therapies and/ or talking therapies including both one-to-one and group approaches). In addition to psychological and drug treatments, a number of studies evaluated the effectiveness of self-help toolkits and on-going support services, finding them to be effective interventions. There was no difference between telephone and face-to-face CBT, highlighting that cost-effective treatments can be effectively applied.

5.2.1 Determinants of effective treatment

Furthermore, treatments targeting specific sub populations (e.g. interventions aimed at and involving women only or ethnic minority groups) were found to be effective especially with reducing isolation and establishing relationships, both which constituted a foundation to recovery. A range of programmes were also identified incorporating a ‘concerned significant other’ (CSO). Most of the evidence that examined involving a CSO suggested that such a strategy increased adherence to treatment.

Substituting gambling activities with recreational and social activities helped participants have better connections with the community and access help from family, friends and neighbours. Such re-engagement programmes contributed to patients gaining greater control over their gambling. These types of interventions could be considered effective when treating moderate and low risk gamblers or providing aftercare, as evidence suggest people adopt gambling behaviour as a social activity or a form of escapism.

5.3 Knowledge gaps and limitations

The review did not identify any studies that were focused on identifying the size of the problem gambling population not engaged in any form of treatment or support. Rather, studies exploring and identifying the numbers of problem gamblers focused on national surveys representative of the population in question. Where studies explored effectiveness of specific interventions, those participants included were already *within* the treatment programme and recruited through purposive, snowball or convenience sampling. It is essential that any future studies employ a design that allows for a calculation/identification of the population size of those problem gamblers that are

hidden to service provision, unable to access specific interventions or choose to avoid services or support.

The lack of research in this area similarly affects the availability of evidence concerning geographical variations in the level of demand for treatment and support for problem gamblers. To begin to assess inequalities to access, identifying where services necessarily need to be placed, studies will need to provide evidence on the size of the problem gambling population nationally and regionally and then compare these results with the availability of services for problem gamblers in these areas. In short, a rigorous mapping exercise is necessary.

In addition, the lack of available evidence on the size of the problem gambling population as well as the size that is engaged in any form of treatment or support does not allow for an investigation of the characteristics of people not engaged in any form of treatment of support. Further research is needed to assess the size and subsequently characteristics (or demographics) of the problem gambling population and compare those individuals' engagement with treatment with those who have not engaged in any form of treatment or support.

Whilst there was a lack of available evidence on the level of demand for treatment geographically, this review found that amongst the range of treatment types that were offered, these were concentrated in the community. Where individuals are living far from treatment and/ or in a 'triggering' environment, only two in-patient responses were identified suggesting lack of available treatment/support services in rural and remote areas.

A number of studies demonstrated that community, media and advertising play a crucial role in facilitating access to self-referral pathways. Any treatment gap will exist if individuals do not have access to the internet and/ or live in a supra-rural area limiting their exposure to such formats. The combinatory routes individuals took to access treatment demonstrates that self-referral to treatment can follow a multi-staged journey of help seeking, ranging from online support to formal counselling before specialised treatment is eventually accessed.

5.3.1 Limitations of the research process

This study adopted a REA methodology that was designed to efficiently locate and synthesise relevant studies across a number of themes. Only a proportion of all results returned from our search were screened, though results were prioritised using Rayyan Software and machine learning algorithms to ensure that the most relevant studies were assessed for inclusion. Owing to the need for an efficient review process, we only synthesised primary studies that met our inclusion criteria and scored above a set threshold in the critical appraisal stage of the review. The findings section and review conclusions are therefore based on a proportion of all includable studies and do not comprehensively summarise all relevant evidence.

5.4 Conclusion

This REA identified a number of areas in which sufficient evidence is available to guide policy and practice as well as highlighting those areas where there is a notable lack of evidence. For example, there is extensive evidence on pathways to care as well as those barriers and enablers to treatment access. In contrast, there is seemingly little clear guidance or evidence on treatment gaps.

In addition, even where evidence was available to support the research questions, the data that it captured was seemingly limited. This review found that problem gamblers were identified as having co-morbid physical and health problems as well as co-morbid lifestyle behaviours (e.g., smoking). However, no one paper was able to identify 'causality', e.g., that additional physical health problems resulted in an increased risk of problem gambling. It is essential that future research explore the bidirectional relationship between gambling behaviour and health (e.g. gambling problems leading to mental/physical health problem but also mental/physical health problems triggering problematic gambling behaviour). To begin to mitigate this evidence gap we will investigate mental and physical health comorbidities and health behaviour correlates in Work Stream 2 of this overarching research programme (secondary analysis of treatment data drawn from GamCare as well as Health Survey for England).

Studies that evaluated the effectiveness of treatment/support services measured a diverse set of outcomes; some of which were directly related to gambling behaviour and some of which were proxies such as psychosocial wellbeing. The positive outcomes resulted from the interventions led not only to an improved quality of life of the gamblers included in the treatment, but also to greater control of their gambling disorder and treatment compliance. The majority of relevant studies reviewed, indicated that decreased levels of problem gambling were maintained at follow-up. However, it should be noted that no one paper measured outcomes beyond 12 months.

The review identified a number of pathways to treatment/support services but most of the referral pathways identified were of a clinical nature. In particular, patients were reported as being recruited from those seeking treatment in a hospital, counselling centre or in-patient facilities. However, a number of barriers and enablers were identified with regards to initial access to services and continuous use of services (including attendance of a sufficient number of therapy sessions, successful completions and dropouts). Such barriers and enablers were of personal, therapeutic, practical and social nature.

The lack of evidence on the size of the problem gambling population and subsequently on the size of problem gamblers who engage in treatment support was notable and revealed subsequent gaps in evidence. The lack of evidence does not allow for a calculation of the geographical distribution/variations of the level of demand for treatment/support. Similarly, a lack of evidence on the size of the population which accesses treatment/support services creates a further gap in knowledge regarding the characteristics of those individuals or groups of people who do not engage in any form of support or treatment. These gaps in knowledge will be explored further in Work Stream 2 of this programme through secondary analysis of existing large national datasets, which can provide evidence on nationally representative samples of people. Limited evidence was also found regarding the cost effectiveness of treatment and support services as well as the aftercare once support has been provided. The results of this review and these areas of investigation with regards to cost-effectiveness and aftercare will be explored further through qualitative interviews with care/support providers and other stakeholders involved in providing treatment/support (WS3) of this research programme.

Appendix A. Accompanying Tables

Table 1 Inclusion criteria and outcome

Screening stage	Criteria	Outcome if met
Title screening	Study explores seeking help for problem gambling.	Carry forward
Abstract screening	Study based in OECD countries.	Carry forward
	Study identifies the prevalence of problem gambling or, estimated numbers of 'problem gamblers'.	Carry forward
	Study estimates (or identifies) those population groups less likely to seek help for problem gambling.	Carry forward
	Study discusses if treatment or services are appropriate/not appropriate for different groups.	Carry forward
	Study focuses on non-engagement with treatment/services.	Carry forward
	Study focuses on engagement with treatment/services.	Carry forward
	Study identifies the type of intervention needed.	Carry forward
	Study identifies those roles (e.g. clinical and/or professional) that enable (or encourage) referral and/or sign-up to interventions.	Carry forward
	Study highlights referral pathways.	Carry forward
	Study is clear on the type of treatment/support intervention(s) discussed.	Carry forward
	Study explores differences (if any) in outcomes for patients following treatment.	Carry forward
	Study discusses access to treatment/services.	Carry forward
	Study investigated barriers to access to treatment/services.	Carry forward
Abstract Screening	Study identifies type of intervention(s).	Carry forward
	Study identifies population receiving treatment.	Carry forward
	Study discusses economic impact of treatment/service.	Carry forward
	Study discusses aftercare.	Carry forward
Full text screening	Study based in OECD countries (if not indicated in the abstract).	Carry forward
	Study identifies type of gambling population/intervention group by characteristics.	Include
	Study identifies geographical differences in demand for treatment/services.	Include
	Study identifies geographical differences in treatment/services available.	Include
	Study discusses specific referral pathways to the treatment/service under investigation.	Include
	Study discusses if treatments/services are more effective for certain populations of problem gamblers.	Include
	Outcomes measured for engagement or completion of treatment/support are demonstrated with data.	Include
	Study highlights pathway to attendance/engagement.	Include
	Study explores barriers and enablers for access.	Include
	Barriers related to issues with: a. Service type/provision; b. Location; c. Clinical need; d. Demographic differences.	Include
	Study identifies challenges associated with treatment.	Include
	Study investigates cost-effectiveness using data and analysis.	Include
	Study highlights and discusses any gaps in, barriers and/or enablers to aftercare provision.	Include

Table 2: Studies estimating the size of the problem gambling population

Authors (Year)	Title	Country	Sample	Study design	Reported clinical and health characteristics of those engaged in study treatments	Reported demographics characteristics of those engaged in study treatments
Alvarez et al. (2011)	Effect of executive functioning, decision-making and self-reported impulsivity on the treatment outcome of pathologic gambling.	Spain	88	Mixed methods	• 17% were taking psychiatric medication, primarily antidepressants. • Of these, 75% were using selective serotonin reuptake inhibitors (SSRIs) and 38% benzodiazepines.	• 8% female with a mean age of 36.7 years. • Mean 10.7 years of education (SD=3.2). • 52% were married, 34% were single and the remaining 13% were separated or divorced. • 84% were employed.
Lisa and Davis (2008)	Women's Recovery from Compulsive Gambling: Formal and Informal Supports.	USA	136	Survey	• 46% had history of co-occurring mental illness. • 21% had history of drug addiction. • 17% had history of alcoholism.	• All female. • Respondents in recovery for six months or more were primarily: middle-aged, white, well educated, with medium-high incomes.
Backer et al. (2018)	Effects of a depression-focused internet intervention in slot machine gamblers: A randomized controlled trial.	Germany	286	RCT	• 45% screened positive for OCD; 44% for Specific Phobia; 41% for Post-Traumatic Stress Disorder; 32% for Social Phobia; • 31% for Generalized Anxiety Disorder; 34% for Panic Disorder; 20% for Depression; 12% for Agoraphobia; and 7% for Panic with Agoraphobia.	• 76.4% male. • 87.1% of German origin. • Mean age of 35.71 years (SD=10.21). • Mean 10.7 years of education (SD=1.5). • 49% lived with a partner; 31% lived alone. • 69% were in full-time employment and 12% were unemployed.

Authors (Year)	Title	Country	Sample	Study design	Reported clinical and health characteristics of those engaged in study treatments	Reported demographics characteristics of those engaged in study treatments
Black et al. (2013)	Pathological gambling: relationship to obesity, self-reported chronic medical conditions, poor lifestyle choices, and impaired quality of life.	USA	95	Survey	[None reported]	Total sample: • 90% Caucasian, 6% African-American, 2% Hispanic/Latino, and 2% American Indian. Treatment group: • 58% female; • Mean age of 45.6 years; • Mean 14.1 years of education. • 72% had children; • 35% were married, 36% divorced/separated, 3% widowed, 26% single; • 77% employed, 18% unemployed, 17% students, 4% homemaker, 9% retired. Control group: • 63% female; • Mean age of 49.4 years; • Mean 15.2 years of education; • 92% had children, 80% were married, 8% divorced/separated, 5% widowed, 7% single; • 75% employed, 11% unemployed, 9% students, 15% homemaker, 21% retired.

Authors (Year)	Title	Country	Sample	Study design	Reported clinical and health characteristics of those engaged in study treatments	Reported demographics characteristics of those engaged in study treatments
Boughton et al. (2016)	Group treatment for women gamblers using web, teleconference and workbook: Effectiveness pilot	Canada	25	Qualitative	• 42% had sought professional treatment for depression;31% for anxiety; 12% for panic; 12% for anger; and 8% for manic-depression.	• All female. • 85 of white European descent. • Mean age 56 years (SD: 9.7; 28-70). • 20% had high school education or less, 16% had attended a community college or technical school and 46% had completed some university education or, had professional degrees. • 42% married or in common-law relationships. • 56% were employed full or part time or were looking for work. 27% were retired and 8% claimed disability benefits.
Boughton et al. (2017)	Closing a Treatment Gap in Ontario: Pilot of a Tutorial Workbook for Women Gamblers.	Canada	33	Qualitative	• 70% had sought professional treatment for depression, 58% for anxiety; 30% for anger; 27% for panic; 12% for schizophrenia; and 9% for manic-depression. • 58% had been prescribed medications for emotional issues, and 36% were currently taking medications. • 42% had experienced serious thoughts of suicide and 39% had attempted suicide. • 36% had been hospitalized for mental health issues. • Comorbidities included drug and alcohol use, smoking, eating disorders (bulimia or anorexia), compulsive spending, shoplifting, compulsive sexual activity and anger issues. • 36% had a disability. • 24% reported mother with psychiatric problem, 30% reported sibling with psychiatric problem and 12% reported father with psychiatric problem.	• All female. • 65% were of White European descent. • Mean age 51.5 years. • 39% completed high school or less and 36% had a community college degree. • 62 % married. • 55% had at least one child. • 33% were employed full or part time and 21% were retired.

Authors (Year)	Title	Country	Sample	Study design	Reported clinical and health characteristics of those engaged in study treatments	Reported demographics characteristics of those engaged in study treatments
Buchner et al. (2015)	Inpatient treatment for pathological gamblers in Germany: setting, utilization, and structure.	Germany	2,229	Secondary data analysis	• 60% reported mental and behavioral disorders. • Of these, 76% were coded as further mental disorders; 13% were coded as alcohol specific disorders; and 11% were related to medical substances or illicit drugs. • 17% reported disorders of the digestive system/metabolic disorders. • 9% reported disorders of the musculoskeletal system/connective tissues. • 4% reported disorders of the circulatory and respiratory system. • 10% reported other disorders.	[None reported]
Carlbring et al. (2010)	Motivational Interviewing Versus Cognitive Behavioral Group Therapy in the Treatment of Problem and Pathological Gambling: A Randomized Controlled Trial.	Sweden	150	RCT	• 44% had sought prior treatment for gambling; 75% were unhappy with this treatment.	• 16% female and 84% male. • 66% Swedish; 51% had parent born in another country. • Mean age 40.5 years (SD=12.3). • 20% had primary school education; 56% had secondary school education; 24% had university education. • 35% lived alone (without a partner) with children. • 64% were employed; 4% were students; 15% were unemployed; 15% were on sick leave; 2% were retired; 1% were 'miscellaneous'.

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Castrén et al. (2015)	Past-year gambling behaviour among patients receiving opioid substitution treatment.	Finland	244	Secondary data analysis	[None reported]	• 62% male and 38% female. • Mean age 36.6 for males (SD=7, 22-55) and 34.7 for females (SD=9, 22-59).
Dannon et al. (2011)	Acamprosate and baclofen were not effective in the treatment of pathological gambling: preliminary blind rater comparison study	Israel	17	RCT	[None reported]	Baclofen treatment group (n=9): • Mean age 29.7 years; • 24% Israeli-born, 30% Eastern European, 46% North African descent; • 40% completed 12th grade; 36% had a high school diploma; 24% attended university; • 70% were married; 18% were widowed, divorced, or separated and 12% never married; • 18% were unemployed and 82% worked full or part time. Acamprosate treatment group (n=8): • Mean age 30.4 years; • 25% Israel-born, 25% Eastern European; 50% North African descent; • 40% completed 12th grade, 40% had a high school diploma; 20% attended university; • 66% were married, 20% widowed/divorced, separated and 14% never married; • 16% were unemployed and 84% worked full/part time.

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Echeburúa et al. (2011)	Cognitive-behavioural treatment of pathological gambling in individuals with chronic schizophrenia: a pilot study	Spain	44	RCT	• 100% diagnosed with schizophrenia.	• 93% male. • Mean age 38.45 years. • 73% completed only primary school. • 82% single. 72% reported family support. • 23% institutionalized in secondary care mental health organisations; others lived with family members. • 86 were retired (pensioners). • 93% reported low socio-economic status.
Gainsbury et al. (2014)	Professional Help-Seeking for Gambling Problems: Awareness, Barriers and Motivators for Treatment.	Australia	730	Survey	Using the Problem Gambling Severity Index (PGSI): • 21% of the respondents were categorized as non-problem gamblers, 11% were low-risk gamblers, 16% were moderate-risk gamblers and 47% were problem gamblers. • 32 participants failed to complete the PGSI. • Of the 346 problem gamblers in the sample, 71% had sought professional help for their gambling and 29% had not.	• 55% male, 45% female. • 63% aged 45 years or older. • 66% of respondents were born in Australia. • 38% were married, 21% were separated or divorced, and 25% had never married. • 36% worked full-time and 23% were retired (pensioners). • 69% lived in a metropolitan (urban) area.
Geisner et al. (2015)	Gambling-Related Problems as a Mediator Between Treatment and Mental Health with At-Risk College Student Gamblers	USA	139	RCT	[Not reported]	• All students. • 65% male. • 59.6% Caucasian. • Mean age 20.3 years.
Gomes and Pascual-Leone (2009)	Primed for Change: Facilitating Factors in Problem Gambling Treatment	Canada	60	Quasi-Experimental Design	• 33% reported a lifetime diagnosis of depression. • 41% reported abusing at least one substance.	• 54% male. • 88% Caucasian. • Mean age was 46.7 years.

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Hing et al. (2012)	A profile of gambling behaviour and impacts among Indigenous Australians attending a cultural event in New South Wales.	Australia	277	Survey	• 10% reported seeking and receiving help • 7% reported seeking and not receiving help.	• All Indigenous Australians. • 56% female. • ~27% aged under 30 years; 21% were 30–39 years; 23% were 40–49 years; 20% were 50–59 years; 9% were 60 years or over. • ~46% married or in a de facto relationship; 13% separated or divorced; 5% widowed; 36% were single. • 54% self-employed or in full or part-time employment; 18% were unemployed, 27% received a pension or allowance as their main form of income.
Hing et al. (2014)	Gambling Harms and Gambling Help-Seeking Amongst Indigenous Australians.	Australia	1,259	Survey	• 30% reported not gambling. • 80% had gambled in the past year. These participants took part in (on average) 3.47 (SD = 2.93) different gambling activities out of the eleven different gambling activities surveyed. • Most (91%) had never sought gambling help, while 3% had sought help but received none, with only 5% seeking and receiving help.	• All Indigenous Australians. • 92% identified as being of Aboriginal origin; 4% reported as of Torres Strait Island origin; 4% identified as both. • 43% were unmarried, 24% were married; 23% lived with a partner. • 63% reported work as their main source of income and 30% reported a pension as their main source of income.
Hing and Nuske (2012)	The Self-Exclusion Experience for Problem Gamblers in South Australia.	Australia	36	Survey	[Not discussed]	• 66% female and 33% male. • Mean age of 46.1 years (SD=11.76). • 39% separated or divorced; 39% never married.

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Hodgins et al. (2009)	Randomized Trial of Brief Motivational Treatments for Pathological Gamblers: More Is Not Necessarily Better.	Canada	314	RCT	[Not reported]	Brief treatment: • 55% female; • 29% completed higher education; • 45% married or common law relationship, 21% never married, 30% separated or divorced; • 64% employed full or part time, 7% retired, 12% on disability, 10% unemployed. Brief booster treatment: • 56% female; • 36% completed higher education; • 41% married or common law relationship,17% never married, 38% separated or divorced; • 79% employed full or part time, 8% retired, 8% on disability, 5% unemployed. Workbook only: • 55% female; • 32% completed higher education; • 50% married or common law relationship, 24 % never married, 23% separated or divorced; • 71% employed full or part time, 10% retired, 10% on disability, 6% unemployed. Waitlist control: • 55% female; • 43% completed higher education; • 49% married or common law, 22 % never married, 29% separated or divorced. • 71% employed full or part time, 12% retired, 6% on disability, 9% unemployed.

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Holdsworth and Tiyce (2012)	Exploring the Hidden Nature of Gambling Problems among People Who Are Homeless.	Australia	17	Qualitative	[Not reported]	• Service users who were homeless for periods between 1 month and 5 years. • 10 men and 7 women. • Aged 22 to 63 years old.
Horsch and Hodgins (2015)	Self-stigma coping and treatment-seeking in problem gambling.	Canada	155	Survey	• 94% had gambling disorder. • 54% had never sought treatment. • 69% were current gamblers.	• 69% male; 30% female; 1% undisclosed. • 50% European, 19% First Nations, 7% East Asian and 10% other. • Aged 18 to 73 years. • 16% achieved less than a high school diploma; 23% completed 12th Grade; 23% completed some post-secondary education; 21% completed community college or technical school and 16% had obtained an undergraduate degree or greater. • 17% were married; 16% were in common-law relationships; 16% were divorced, 7% were separated; 1% were widowed; 42% were single. • 30% worked full-time; 21% worked part-time; 42% were unemployed, and 7% were retired.
Jackson et al. (2013)	Leisure Substitution and Problem Gambling: Report of a Proof of Concept Group Intervention.	Canada	30	Mixed methods	• 28 were attending a counselling programme at the start of the group intervention; 2 were not.	• 9 male, 21 female. • 8 single, 8 married or partnered, 9 divorced or separated, 1 widowed. • 15 worked full time and 3 worked part-time.

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Jaimeson et al. (2011)	When Problem Gambling is the Primary Reason for Seeking Addiction Treatment.	Canada	2,596	Secondary data analysis		Primary gamblers:[4] • 42% male; • Mean age 48.5 years; • 7% were in Primary Education, 19% Secondary; 16% completed secondary, 42% in Community College, 17% in university; • 44% married or partnered, 27% separated or divorced, 23% single, 7% widowed; • 9% were retired, 53% employed, 4% students, 19% not working. Secondary gamblers: • 64% male; • Mean age 34 years; • 11.5% were in Primary Education, 60% Secondary; 13% completed secondary, 9% in Community College, 7% in university; • 20% married or partnered, 18% separated or divorced, 60% single, 2% widowed; • 1% were retired, 21% employed, 25% students, 43% not working.
Jiménez-Murcia et al. (2015)	Predictors of Outcome among Pathological Gamblers Receiving Cognitive Behavioral Group Therapy.	Spain	440	Quasi-Experimental Design	[Not reported]	• 5% male. • Mean age 41.2 years (SD=12.5; 18-74). • 96% completed secondary school. • 58% married. • 73% in employment.

[4] The participants were divided into 3 different groups depending on the severity of their gambling problem and/or substance abuse. The third group is not reported as this focused solely on those with substance abuse.

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Jiménez-Murcia et al. (2013)	Typologies of young pathological gamblers based on sociodemographic and clinical characteristics.	Spain	154	Quasi-Experimental Design	75% smokers.	• 94% male. • Participants were aged 17 to 25. • 11% married or living with a partner. • 61% employed.
Jiménez-Murcia et al. (2017)	The Involvement of a Concerned Significant Other in Gambling Disorder Treatment Outcome.	Spain	6,755	Mixed methods	[Not reported]	• Mean age 43 years (SD=12.7). • 55% had primary education and 39% had secondary education. • 57% were married or lived with a partner. • 62% were employed.
Jiménez-Murcia et al. (2012)	Does exposure and response prevention improve the results of group cognitive-behavioural therapy for male slot machine pathological gamblers?	Spain	502	Mixed methods	[Not reported]	• Mean age 39.8 years (SD=12.5). • 53% had primary education and 42% had secondary education. • 60% were married or lived with a partner. • 81% were employed.
Kaufman et al. (2017)	Barriers to Treatment for Female Problem Gamblers: A UK Perspective.	UK	8	Qualitative	• All had received CBT through the NHS.	• All British females. • Age range 30-55. • 4 single, 1 married, 1 separated, 2 living with partners.
Kim et al. (2016)	Gender Differences Among Helpline Callers: Prospective Study of Gambling and Psychosocial Outcomes.	New Zealand	150	Secondary data analysis	[Not reported]	• 57% female and 43% male. • 52% of women of Maori descent and 16% were of 'other' descent (Asian or Pasifika); 56% of men were of European descent.48% married or partnered. • Mean age for all 39.7 years. • Mean age for females 37.16 (SD=13.39) and mean age for males 41.49 (SD=13.59).

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Knezevic and Ledgerwood (2012)	Gambling Severity, Impulsivity, and Psychopathology: Comparison of Treatment- and Community-Recruited Pathological Gamblers.	Canada	106	Quasi-Experimental Design	[Not reported]	Community recruited gamblers: • 21 female and 28 male; • 42 Caucasian, 6 African Canadian/American; • Mean age 46.2 years; • Mean education 15.22 years; • 14 were married, 13 divorced, 2 widowed; • 27 employed, 21 unemployed. Treatment enrolled gamblers: • 27 female and 28 male; • 51 Caucasian, 3 African Canadian/American; • Mean age 46.3 years; • Mean education 14.3 years; • 25 were married, 9 divorced, 1 widowed; • 41 employed, 15 unemployed.
Korman et al. (2008)	Randomized control trial of an integrated therapy for comorbid anger and gambling.	Canada	42	RCT	• 19 participants reported substance abuse. • Of these, 84% used alcohol; 42% used cannabis; 32% used cocaine; 26% used opiates.	• Mean age 47.6 years. • 64.3% of participants reporting their primary ethnocultural affiliation being something other than Canadian, British, or French. • 19% did not complete high school; 21% completed high school; 59% had some postsecondary education. • 28% married or living with a partner; 26% single; 36% divorced or separated. • 45% worked full-time; 14% worked part-time. • Average income CAD $32,125 (SD: CAD$21,219; $2,000-,90,000).

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Kovanen et al. (2016)	A Randomised, Double-Blind, Placebo-Controlled Trial of As-Needed Naltrexone in the Treatment of Pathological Gambling.	Finland	101	RCT	• 46% engaged in hazardous alcohol consumption;	• 68% males. • Average age 46 years (20-73). • 46% completed vocational school. • 47% lived alone; 47% lived with a partner and/or children; 43% were married or cohabiting. • 60% were employed.
Kowatch and Hodgins (2015)	Predictors of help-seeking for gambling disorder from the transtheoretical model perspective.	Canada	136	Quasi-Experimental Design	• 98% met DSM-5 criteria for disordered gambling. • 96% classified as problem gamblers using the PGSI.	• 64 women; 72 men. • Mean age of 44.5 years (SD=12.8; 19-74). • 80% Caucasian;, 11% Aboriginal; 29% Chinese; 1% Filipino; 1% South East Asian; and 2% identified as 'other'. • 21% completed less than high school diploma; 21% completed a trade certificate or diploma; 26% other post-secondary education. • 38% married or in common law relationships; 27% divorced, separated or widowed; 44.6% single. • 49% reported religious affiliation: 21% of the sample was Catholic; 16% were Protestant and 11% identified as 'other'.
LaBrie et al. (2012)	A Brief Self-Help Toolkit Intervention for Gambling Problems: A Randomized Multisite Trial.	USA	315	RCT	Nevada: • 77% pathological gamblers. • 33% had prior treatment for a mental health or emotional problem. Massachusetts: • 68% pathological gamblers. • 30% had prior treatment for a mental health or emotional problem.	Nevada: • 52% male; • 74% White;; • Mean age 44 years; • 34% rural. Massachusetts: • 66% male; • 66% White; • Mean age 49 years; • 44% rural.

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Ledgerwood et al. (2017)	Assessing the Need for Higher Levels of Care Among Problem Gambling Outpatients.	USA	93	Survey	• Average NORC Diagnostic Screen for Gambling Problems (NODS) score 8.1 (SD=2.2). • 57% reported current anxiety; 57% depression; 20% suicidal thoughts; 3% recent suicide attempts; 10% current alcohol problems; 2% current drug problems.	• 52% male and 48% female. • Mean years of education 12.4 (SD=3.9). • 69% European American; 21% African American; 10% identified as 'other'. • 35% married. • 69% employed.
Lee and Awosoga (2015)	Congruence Couple Therapy for Pathological Gambling: A Pilot Randomized Controlled Trial.	Canada	36	RCT	• 13% reported attendance at Gamblers Anonymous meetings. • 16 pathological gamblers and 14 non-gambling partners.[5] • 57% reported past addictions and other current addictions.	• 66% of the gamblers were male. • 73% Caucasian, 24% Asian and 3% Aboriginal. • Mean age of 49.3 years. • 27% had a university degree. • 87% employed.
Linardatou et al. (2014)	An 8-week stress management program in pathological gamblers: a pilot randomized controlled trial.	Greece	42	RCT	[Not reported]	Intervention group: • 96% male; • Mean age 43 years; • 50% had college education; • 64% married. Control group: • 90% male; • Mean age 42 years; • 50% had college education; • 45% married.
Morefield et al. (2014)	An Inpatient Treatment Program for People with Gambling Problems: Synopsis and Early Outcomes.	Australia	53	Research plan	• 60% previously tried one or more strategies to stop or control their gambling, including: 21% using self-barring from venues and 17% using counselling such as Relationships Australia.	• 42% female. • Mean age 43.5 years.

[5] Both partners in one couple were gamblers.

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Myrseth et al. (2014)	A controlled study of the effect of cognitive-behavioural group therapy for pathological gamblers.	Norway	14	Mixed methods	[Not reported]	Treatment group: • 57% male; • Mean age 36.57 years; • 14% married, 14% divorced, and 29% unmarried; • 29% employed, 57% unemployed, 14% students. Control group: • All male; • Mean age 38.29 years; • 14% married; 29% divorced, 29% unmarried; • 29% employed, 14% students, 57% unemployed.
Najavits (2013)	Treatment Utilization of Pathological Gamblers with and without PTSD.	Canada and the US	106	Mixed methods	• The participants included a sample of 36 with current PTSD; 35 with current problem gambling (PG); and 35 with current PTSD and PG.	• 60% female. • Mean age 43 years old (SD=14.06). • 69% Caucasian; 13% Black; 9% Asian; 6% Hispanic; multiple ethnicity 4%. • 17% married; 10% cohabiting; 17% divorced; 5% widowed; 43% never married. • 53% had no children; 47% had children. • 22% had completed high school or less; 56.6% had graduated or attended college; 21.7% attended graduate or professional school.

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Najavits et al. (2013)	Seeking Safety Therapy for Pathological Gambling and PTSD: A Pilot Outcome Study.	Canada and the US	7	Mixed methods		• 4 women and 3 men. • 72% Caucasian, 14% Black, 14% Asian. • Average age 45.89 years (SD=10.61). • Mean years of education 15 (SD=3). • 29% married or in common law relationship; 20% separated; 29% divorced; 14% never married. • Paid average of $500 from employment in past 30 days (SD=651.15).
Nash et al. (2018)	Out of Luck - An exploration of the causes and impacts of problem gambling	UK	1,537	Mixed methods	• 13% self-reported disability or long-term health condition.	• 71% male. • 83% White British. • 44% aged 35-49. • 35% lived with partner and dependent children.
Nelson et al. (2010)	One Decade of Self Exclusion: Missouri Casino Self-Excluders Four to Ten Years after Enrollment.	USA	113	Survey	[Not reported]	• 45% male. • 81% Caucasian. • Average age 45.1 (SD=10). • 58% married. • 76% employed.
Oakes et al. (2012)	A Pilot Group Cognitive Behavioural Therapy Program for Problem Gamblers in a Rural Australian Setting.	Australia	7	Mixed methods	• Each participant had a concurrent co-morbid mental health condition. • Comorbid mental health conditions included PTSD and severe depression.	• 4 women and 3 men. • Mean age 51 years. • 4 non-married. • 4 employed.
Odlaug et al. (2013)	The relationship of tobacco use with gambling problem severity and gambling treatment outcome.	USA	385	Survey	• All sought treatment for pathological gambling at treatment facilities in Minnesota, USA. Participants using tobacco daily (n=244): • 54% lifetime treatment for mental health problems. Participants not using tobacco (n=141): • 49% lifetime treatment for mental health problems.	Participants using tobacco daily (n=244): • 56% female; • 84% White; Mean age 42.59 years; • 71% some college education or less; • 61% non-married. Participants not using tobacco (n=141): • 51% female; • 87% White; Mean age 45.59 years; • 58% some college education or less; • 55% non-married.

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Oei et al. (2018)	Effectiveness of a Self Help Cognitive Behavioural Treatment Program for Problem Gamblers: a Randomised Controlled Trial.	Australia	55	Mixed methods	• Community volunteers with gambling problems from Queensland, Australia.	• 51% female. • 87% Caucasian. • Mean age 49.39 years. • 49% had secondary education as highest education level. • 46% were married or in a relationship.
Parhami et al. (2012)	The implementation of a telephone-delivered intervention for Asian American disordered gamblers: A pilot study.	USA	8	Mixed methods	• All met an average of eight DSM-IV criteria for pathological gambling.	• 7 men and 1 woman. • 7 of Chinese origin. • Average age 48 years. • All married. • 6 worked full-time. • 5 lived in San Francisco County.

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Petry et al. (2016)	A Randomized Controlled Trial of Brief Interventions for Problem Gambling in Substance Abuse Treatment Patients.	USA	217	RCT	Brief psychoeducation treatment group (n=69): • 58 pathological gamblers. Brief advice treatment group (n=66): • 57 pathological gamblers. MET and CBT group (n=82): • 72 pathological gamblers.	Brief psychoeducation treatment group (n=69): • 21 female; • 37 African American, 17 White, 12 Hispanic, 2 identified as 'other' ethnic group; • Mean age 40.9 years; • 11 employed full or part-time, 44 unemployed,14 not in work force. Brief advice treatment group (n=66): • 21 female; • 35 African American, 20 White, 10 Hispanic, 1 identified as 'other' ethnic group; • Mean age 42.1 years; • 10 employed full or part-time, 41 unemployed, 15 not in work-force. MET and CBT group (n=82): • 21 female; • 38 African American,25 White,19 Hispanic; • Mean age 42.7 years; • 12 employed full or part time, 49 unemployed, 21 not in work force.
Piquette and Norman (2013)	An All-Female Problem-Gambling Counseling Treatment: Perceptions of Effectiveness.	Canada	4	Qualitative	• Self-reported unhappiness with gambling involvement.	• All female. • All Caucasian Canadians. • Aged 30-50 years. • All employed. • All had post-secondary education.
Piquette-Tomei et al. (2008)	Group therapy for women problem gamblers: A space of their own.	Canada	14	Qualitative	• Reported that all the women in the study were problem gamblers.	• All women. • Average age 46.5 years. • 6 women were married. • 7 had children.

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Ramos-Grille (2013)	The role of personality in the prediction of treatment outcome in pathological gamblers: A follow-up study.	Spain	73	Survey	• Pathological gamblers who sought treatment at the Pathological Gambling Unit of the Consorci Sanitari de Terrassa in Spain. • 64% presented with comorbid psychopathology: 22% had a mood disorder; 7% had an anxiety disorder; and 5.6% abused or were dependent on alcohol.	• 94% men. • Age range 21-73 years. • Mean years of education 9.27. • 62% married. • 68% employed.
Rodda and Lubman (2014)	Characteristics of Gamblers Using a National Online Counselling Service for Problem Gambling.	Australia	2,021	Mixed methods	• ~70% of people accessing treatment were seeking treatment for the first time.	Online chat support: • 61% male; • 69% Australian. Email support: • 53% male; • 71% Australian.
Rodda et al. (2013)	Web-Based Counseling for Problem Gambling: Exploring Motivations and Recommendations.	Australia	235	Mixed methods	• All classified as problem gamblers as measured by the PGSI. • Participants with previous help seeking had accessed face-to-face (69%), telephone (15%), chat or email help from Gambling Help Online (10%) or other sources, e.g., international websites (7%).	• 57% male and 43% female. • 31% were aged under 30; 30% aged 30-39 years; 21% aged 40-49 years; 11% were over 50 years.
Ronzitti et al. (2017)	Gambling Disorder: Exploring Pre-treatment and In-treatment Dropout Predictors. A UK Study.	UK	846	Survey	• Treatment-seeking pathological gamblers.	• 93% male. • 74.3% were white. • Average age 35 years. • 79% had at least a university degree. • 50% were never married. • 71% were employed.

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Sander and Peters (2009)	Pathological Gambling: Influence of Quality of Life and Psychological Distress on Abstinence After Cognitive-Behavioral Inpatient Treatment.	Germany	281	Survey	• Treated through inpatient programme at clinic. All were diagnosed as pathological gamblers. • 70% had at least one comorbid psychiatric disorder; 55% had one or more additional psychiatric disorders due to psychoactive substance use.	• 247 men, 34 women. • Mean age 38.2 years. • 49% were single. • 58% were unemployed.
Screiber et al. (2009)	Characteristics of Pathological Gamblers with a Problem Gambling Parent.	USA	517	Mixed methods	• 172 (33%) subjects had at least one parent with problem gambling. • 44% reported only the father had problem gambling; 33% reported only the mother had problem gambling; 23% reported both parents with problem gambling.	Group with a problem gambling parent: • 62% were female; • 90% Caucasian; 10% identified as other race;. • Mean age 46.51 years;. • 46% married; 22% divorced, widowed or separated; 31% single. Group without a problem gambling parent: • 50% female; • 94% Caucasian; 6% identified as other race;. • Mean age 48.9 years; • 48% married; 24% divorced, widowed or separated; 28% single.
Smith et al. (2018)	Exploring Patterns of Change Processes Over Distinct In-Treatment Phases of Cognitive and Exposure Therapies for Electronic Gaming Machine Problem Gamblers.	Australia	87	RCT	[Not reported]	Exposure therapy group (n=43): • 22 women; • Mean age 45.5 years; • 16 married, 26 divorced, separated, single or widowed; • 22 employed, 19 unemployed. Cognitive therapy group (n=44): • 22 women; • Mean age 47.45 years; • 17 married, 25 divorced, separated, single or widowed; • 24 employed, 18 unemployed.

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Smith et al. (2018)	Treatment outcomes and predictors of drop out for problem gamblers in South Australia: a cohort study.	Australia	127	Survey	• Treatment-seeking adult problem gamblers in South Australia. Compared with normal population scores, participants had higher levels of depression, anxiety and stress.	• 54% men. • Mean age 43 years. • 45% married; 19% living alone. • 58% high school was highest educational level. • 59% in full-time or part-time employment.
Smith et al. (2015)	Effects of Affective and Anxiety Disorders on Outcome in Problem Gamblers Attending Routine Cognitive-Behavioural Treatment in South Australia.	Australia		Survey	• Treatment-seeking problem gamblers in South Australia. • Psychological distress categorized as low/moderate (n=102); high (n=103); and very high (n=175).	• Age ranged from 43.4 years to 45.3 years. Low/moderate distress group: • 63 men; • 54 had no partner; • 65 were employed. High distress group: • 60 men; • 62 had no partner; • 66 employed. Very high distress group: • 88 men; • 106 had no partner; • 96 employed.
Squires et al. (2012)	The Problem with Self-Forgiveness: Forgiving the Self Deters Readiness to Change Among Gamblers.	Canada	110	Survey	• All reported at least one symptom of gambling problems using the DSM-IV checklist.	• 33 females, 75 males, 2 undisclosed. • 56% Euro-Caucasian. • Mean age 20 years (17-38). • All students in psychology classes at a Canadian university. • 95% never married.

Authors (Year)	Title	Country	Sample	Study design	Reported clinical and health characteristics of those engaged in study treatments	Reported demographics characteristics of those engaged in study treatments
Suurvali et al. (2012)	Motivators for Seeking Gambling-Related Treatment Among Ontario Problem Gamblers.	Canada	730	Survey	[Not reported]	• 54% male. • Mean age of 45.3 years (SD=14.8). • 53% had some post-secondary education. • 65% were married or in a common-law relationship. • 68% employed full or part-time.
Tonetatto et al. (2008)	Recovery from problem gambling without formal treatment.	Canada	123	Mixed methods	Study 1, Untreated gamblers and treated gamblers: • Treated gamblers defined as gamblers either abstinent for at least 6 months or, if currently gambling, had a current South Oaks Gambling Screen (SOGS) score of 0; • 8% of untreated recovered gamblers and 20% of treated recovered gamblers had been hospitalised for a psychiatric disorder at least once. Study 2, Untreated recovered gamblers: • Untreated recovered problem gamblers had not met DSM-IV criteria within the past year but had met probable pathologic gambling score on the SOGS in their lifetime; • Current untreated problem gamblers (UnPG) were those who scored at least two symptoms on the DSM-IV within the past year; • 9% of untreated recovered gamblers and 15% of untreated problem gamblers had been hospitalised for a psychiatric disorder at least once.	Study 1, Untreated gamblers and treated gamblers: • Sample comprised untreated gamblers and treated gamblers recruited in Toronto; • 89% male; • Average age 39 years; • 52% employed. Study 2: Untreated recovered gamblers: • Sample comprised untreated recovered gamblers and untreated current problem gamblers; • 54% male; • 58% had at least some secondary school education; • 36% were married or in a common-law relationship; • 37% were employed; • Average age 42 years.

Authors (Year)	Title	Country	Sample	Study design	Reported clinical and health characteristics of those engaged in study treatments	Reported demographics characteristics of those engaged in study treatments
Toneatto and Dragonetti (2008)	Effectiveness of Community-Based Treatment for Problem Gambling: A Quasi-Experimental Evaluation of Cognitive-Behavioral vs. Twelve-Step Therapy.	Canada	126	Quasi-experimental design	• In the past year, 29% had psychiatric problems; 12% alcohol problems; 10% problems with other drugs. • 85% met DSM-IV criteria for a current diagnosis of pathological gambling.	• 75% male. • Mean age 41.3 years. • 30% had some college education. • 48% were married or in common-law relationships. • 62% were in full time/part time employment.
Tse et al. (2013)	Face-to-Face and Telephone Counseling for Problem Gambling: A Pragmatic Multisite Randomized Study.	New Zealand	92	RCT	• 86 received no treatment for alcohol/drug issues; 71 had no treatment for mental health issues. • 38 had prior counselling for problem gambling.	• 62 female. • Mean age 44.6 years. • 56 New Zealand or European. • 30 married. • 44 employed full-time. • 36 had a school certificate; 24 had a university degree.
Weinstock et al. (2011)	Predictors of engaging in problem gambling treatment: Data from the West Virginia Problem Gamblers Help Network.	USA	2,912	Survey	• 99% of sample had gambling problem; 1% were a significant other, spouse or family member of a problem gambler. • 82% had a likely diagnosis of pathological gambling on the DSM-IV. • 15% problem gamblers. Across those who declined the referral to an assessment, did not attend the referral and attended the referral: • 2% to 51% reported psychiatric comorbidity.	Across those who declined the referral to an assessment, did not attend the referral and attended the referral: • 52%-60% female; • 45%-48% had high school diploma as highest education level; • 49%-60% married or cohabiting; • 55%-61% employed full-time.

Table 3: Characteristics of the population studies

Author	Year	Sample and method	Findings
Mental and physical comorbidities			
Buchner et al.	2015	▪ N=2,229 ▪ Secondary data analysis of routine data collected from inpatient treatment centres for pathological gamblers in Germany	▪ 60% reported mental health and behavioural disorders, of which 76% were coded as further mental health disorders, 13% were coded as alcohol specific disorders, and 11% related to medical substances or illicit drugs; ▪ Physical health concerns were also identified in this data: 17% of pathological gamblers reported disorders of the digestive system or metabolic disorders; 9% reported disorders of the musculoskeletal system or connective tissues; 4% reported disorders of the circulatory and respiratory system; and 10% reported 'other' disorders.
Odlaug et al.	2013	▪ N=244 ▪ Tobacco-using individuals who sought treatment for pathological gambling at facilities in Minnesota, USA	▪ Of those participants who were problem gamblers and used tobacco daily (n=244), 54% reported lifetime treatment for mental health problems; ▪ Women constituted 56% of this group; ▪ 84% were White; ▪ 71% had some college education or less; and ▪ 61% were non-married. ▪ Among those not using tobacco daily (n=141) 49% reported lifetime treatment for mental health problems.
Ramos-Grille	2013	▪ Survey data collected from pathological gamblers who sought treatment at the Pathological Gambling Unit of the Consorci Sanitari de Terrassa in Spain	▪ 64% presented with comorbid psychopathology: in total, 22% had a mood disorder; 7% had an anxiety disorder; and 6% abused or were dependent on alcohol; ▪ The sample was primarily male (95%) aged between 21-73 years; ▪ Those seeking treatment had a mean 9.27 years of education; 68.5% were employed; and 61.6% were married.
Weinstock et al.	2011	▪ N=2,912 ▪ Callers to the West Virginia Problem Gamblers Help Network in the US	▪ 98.5% of sample had a gambling problem while 1.3% were a significant other, spouse or family member of a problem gambler; ▪ 82% had a likely diagnosis of pathological gambling on the DSM-IV and 15% problem gamblers; ▪ The research group conducting the study offered a referral to a face-to-face assessment for callers. Across those who declined the referral to an assessment, did not attend the referral and attended the referral, 22% to 51% reported psychiatric comorbidity; between 52%-60% were female; between 55%-61% were full-time employed; between 49%-60% were married or cohabiting; and between 45%-48% had a high school diploma as their highest education level.

Author	Year	Sample and method	Findings
Demographic Characteristics			
Jaimeson et al.	2011	▪ N=2,596 ▪ Secondary data analysis of routine data collected at a treatment centre in Ontario, Canada, between 2003 and 2006	Primary gamblers: ▪ 42% were male; ▪ Mean age of 48.5 years; ▪ 7% were in Primary Education; 19% Secondary; 16% completed secondary; 42.2 in Community College; 17% in university; ▪ 44% married or partnered; 27% separated or divorced; 23% single; 7% widowed; and ▪ 53% employed, 4% students, 10% were retired, 19% not working; Secondary gamblers: ▪ 64% were male; ▪ Mean age was 34 years; ▪ 11% were in Primary Education; 60% Secondary; 13% completed secondary; 9.3 in Community College; 7% in university; ▪ 20% married or partnered; 18% separated or divorced; 60% single; 2% widowed; ▪ 21% employed; 25% students; 43% were not working; and 1% were retired.

Table 4: Referral pathways to problematic gambling treatment

Type of referral	Author(s)	Referral pathway	Type of treatment	Findings
Clinical referrals	**1) Patients were already part of a treatment or clinical trial**			
	Castren et al. (2015)	The sample included patients that were being treated at three outpatient clinics in Finland. A total of 144 participants participated in the study. The data regarding their past-year gambling behaviour was collected as part of clinical work.	Patients received opioid substitution treatment (OST). The intervention included two choices of orientation (rehabilitative/harm reduction) and two choices of medication (methadone/buprenorphine-naloxone)	Out of 144 participants, 70% had gambled in the last year and 13% were identified as potential past-year problem gamblers. Patients in the rehabilitative programme (80%) gambled more than those in the harm reduction treatment (54%).
	Echeburua et al. (2011)	Patients were receiving pharmacological treatment at several Mental Health centres in Barcelona (Spain).	Participants were pathological gamblers with chronic schizophrenia receiving either drug therapy for schizophrenia or Cognitive Behavioral Therapy (CBT) and the drug treatment.	Programmes combining pharmacotherapy and psychosocial treatments for gambling into a single package are most likely to have good treatment outcomes. Patients receiving CBT plus drug therapy had a rate of success of 74%, higher than the control group (19%).
	Sander and Peters (2009)	The sample included in the study included patients who were treated for pathological gambling in a clinic in Germany.	Participants were receiving CBT inpatient treatment.	The results showed that relapsed pathological gamblers suffer higher psychological distress at discharge and demonstrated lower quality of life during follow-up than abstinent gamblers.
	Schreiber et al. (2009)	The participants were already enrolled in several clinical research trials investigating the effectiveness of pharmacotherapies and psychosocial treatments for problem gambling.	The study compares characteristics of adult pathological gamblers with and without a problem gambling parent among a sample of 517 individuals.	Pathological gamblers with at least one problem gambling parent were more likely to have a father with an alcohol abuse/dependence problem; have financial and legal problems; and report daily nicotine use.
	Jimenez-Murcia et al. (2015)	The sample consisted of 440 individuals treated at the Pathological Gambling Unit at a University Hospital in Barcelona.	Individuals with a diagnosis of gambling disorder were treated with CBT. The therapy consisted of 16 weekly outpatient sessions lasting 90 min each and a follow-up period lasting up to 2 years.	Patients showed significant improvements in both the level of psychopathology and the severity of the gambling behavior.
	2) Ambulatory services referral			
	Dannon et al. (2011)	Patients were referred to a treatment clinic from ambulatory services throughout Israel, owing to its expertise in working with gambling disorders.	Patients were randomly assigned to treatment with two drugs for their pathological gambling (baclofen or acamprosate).	Neither drug treatment proved efficient in treating pathological gamblers.
	3) GP referral			
	Myrseth et al. (2009)	Two of the 14 participants in the study who met the criteria for pathological	Participants in the treatment group received CBT treatment for their	Six out of seven participants in the Treatment Group improved

Type of referral	Author(s)	Referral pathway	Type of treatment	Findings
		gambling had been referred by their GP. The participants were seeking treatment at the Department of Clinical Psychology at the University of Bergen. No formal referral was required for the intervention.	pathological gambling. Six (two hour) group meetings were held. The control group was placed on a waiting list for treatment.	by at least 50% on the dependent variable DSM-IV Criteria for Pathological Gambling. At the end of treatment, 86% of the treated participants (six of seven) were no longer considered pathological gamblers.
	4) Consecutive referral			
	Jimenez-Murcia et al. (2012)	The sample included 502 slot-machine pathological gamblers patients who were consecutive referrals for assessment and outpatient treatment at a Pathological Gambling Unit in the psychiatric department of a Spanish general hospital.	Treatment included exposure and response prevention to improve the results of group CBT for male pathological gamblers. This consisted of confronting patients with stimuli or situations that trigger the urge to gamble (exposure) and preventing them from carrying out the behaviour (response prevention).	Results showed that the addition of exposure and response prevention therapy to CBT provided limited benefits. The treated group presented higher drop-out rates, poorer attendance at sessions and poorer compliance with the therapy.
	5) No specific description of referral pathway			
	Morefield et al. (2013)	The 53 treatment seeking participants were referred to an inpatient programme rather than outpatient owing to the following reasons: had residence in a remote or rural area, reported being burdened with environmental stressors and distractions, and struggled with one or more comorbid psychological conditions.	The clinic provided inpatient treatment service in which the usual 6–12 sessions of CBT and graded exposure therapy offered in the outpatient program are condensed into an intensive 2-week program of daily treatment sessions in a hospital setting	The statistically significant model showed for each 1 month change in time, a participant's Victorian Gambling Screen (VGS) score, on average, would decrease (improve) by 5.07 units. The intensive inpatient gambling treatment is a viable treatment option for participants with diagnosed gambling disorders and other co-occurring and complex mental health conditions.
Social referral	Jimenez-Murcia et al. (2017)	The 537 patients (80% of total sample) had been referred to the treatment by a spouse or partner (n=311, 58%), a parent (n=121, 22.5%), son or daughter (n=20, 4%), by other family members (n=68, 13%) or a friend (n=17, 3%).	The study measured treatment effectiveness in a cognitive behavioural therapy (CBT) programme involving a concerned significant other (CSO) to a CBT treatment as usual.	The inclusion of a spouse/partner as a CSO (compared to other individuals acting as a CSO) reduced non-compliance with the CBT program treatment (32% vs 42%) and the risk of relapse (21% vs 27%).
Charity referral	Weinstock et al. (2011)	Referrals to a counsellor were done by the free help-line clinicians. Callers completed a standardised interview; then, if appropriate, a two-hour in-person diagnostic assessment with a counsellor was offered.	A charity was operating a gambling help-line offering referrals to specialized counselors.	Gambling help-lines were found to be a convenient and confidential way for many individuals with gambling problems to access specific treatment. Such alternative services may be beneficial for those who do not engage in treatment.

Table 5: Barriers to accessing treatment services

Author	Year	Sample	Findings
Barriers to initial access to treatment services			
Personal barriers			
Gainsbury et al.	2014	Problem gamblers in Australia	▪ Wish to solve gambling problems independently due to stigma.
Hing et al.	2012	Indigenous Australian gamblers who did not seek help for gambling	▪ Lack of understanding of gambling problem (51%); ▪ 24% believed they could solve the gambling problem independently; ▪ 18% that they did not want anyone to tell them to stop gambling; ▪ 16% were concerned about confidentiality; and ▪ 15% reported being too embarrassed to seek help.
Hing et al.	2014	Indigenous Australian problem gamblers	▪ 56% of respondents believed they could tackle the gambling problem independently; ▪ 44% perceived they did not have a gambling problem; ▪ 44% that they did not want someone to tell them to stop gambling; ▪ 44% identified being too embarrassed to seek help; and ▪ 30% reported confidentiality-related concerns.
Suurvali et al.	2012	Problem gamblers in Ontario, Canada	▪ 69% reported that they did not have any concerns about gambling; ▪ A few of the respondents in this group reported that they did not have a gambling problem.
Tonetto et al.	2008		▪ The authors propose that lower gambling problem severity increases the likelihood of gamblers opting out of seeking help.
Hodgins et al.	2009	Pathological gamblers in Canada	▪ Desire to solve the gambling problem independently; ▪ Embarrassment and pride; ▪ Inability to share personal information; and ▪ Perceiving that gambling was not a problem.
Horch and Hodgins	2015	Pathological gamblers in Canada	▪ Gamblers who applied negative stereotypes of other problem gamblers may not self-identify as problem gamblers or may lack insight into their gambling problems.

Author	Year	Sample	Findings
Knezevic et al.	2012	Pathological gamblers in Canada	▪ Comorbid substance abuse issues may reduce the likelihood of help-seeking for problem gambling because such 'addiction' constitutes a more immediate problem than gambling.
Ronzitti et al.	2017	Pathological gamblers who dropped out of treatment before starting treatment, as well as those who completed treatment in the UK	▪ Impulsiveness may be greater in younger people, which may increase the likelihood of dropout; ▪ Younger age and drug usage within the previous month significantly predict pre-treatment dropout.
Squires et al.	2012	Psychology students at a Canadian university who reported at least one symptom of gambling problems under the DSM-IV checklist	▪ Greater self-forgiveness in relation to one's gambling behaviour is significantly associated with reduced readiness to change regarding gambling.
Weinstock et al.	2011	Unique callers to a gambling helpline in West Virginia, USA, 99% of whom were problem gamblers and 1% of whom were a significant other or family member of a problem gambler	▪ Women were significantly less likely to attend the in-person assessment than men potentially due to family commitments; ▪ Individuals who declined a referral to the in-person assessment had less severe problems with regards to diagnostic symptoms, debt and psychiatric comorbidity, possibly because these individuals did not recognise their gambling as problematic; ▪ Individuals who sought assistance for problem gambling in the past were more likely to decline the referral, possibly due to prior treatment experiences.
Holdsworth and Tiyce	2012	Homeless individuals with gambling problems (service users) and those assisted housing and gambling service providers in Australia	▪ Non-disclosure due to perceived stigmatisation; ▪ Desire to qualify for assisted housing.
Kaufman et al.	2017	Female problem gamblers who had received cognitive behavioural therapy for their problem gambling in the UK	▪ Denial of the gambling problem; ▪ Fear; ▪ Ambivalence; ▪ Shame; and, ▪ Feeling misunderstood.
Piquette-Tomei et al.	2008	Women with gambling problems who were attending a counselling group in Canada	▪ Shame ▪ Guilt

Author	Year	Sample	Findings
Avery and Davis	2008	On-line survey (including open and closed questions) to a sample of women who had been abstinent from compulsive gambling for at least six months	▪ Misinformation about compulsive gambling; ▪ Lack of support from healthcare professionals in relation to the gambling problem.
Rodda et al.	2013	Australian problem gamblers who had attended an online counselling session for problem gambling	▪ 27% had selected online counselling over telephone or face-to-face support owing to confidentiality and privacy concerns; ▪ Embarrassment of accessing face-to-face support
Ledgerwood et al.	2017	-	▪ Low levels of readiness and/ or motivation to engage in treatment; ▪ Shame.
Najavits	2010	-	
Parhami et al.	2012	-	
Practical barriers			
Gainsbury et al.	2014	Adult gamblers in Australia	▪ The proportion of respondents who knew of a particular gambling-specific help service, (e.g., gambling helplines and online counselling for gambling), ranged between 10% and 39%, depending on the intervention; ▪ 25% of participants were aware that gambling-related information was available from general practitioners, financial counsellors, relationship counsellors and alcohol and drug services.
Hing et al.	2012	Indigenous Australian gamblers	▪ 24% of respondents identified that they did not know where to seek help; ▪ 15% reported that they did not believe a help service would understand their cultural background; and ▪ 13% that the type of help they wanted was not locally available.
Hing et al.	2014	Indigenous Australian gamblers	▪ 30% of problem gamblers do not seek help due to lack of knowledge, a lack of appropriate local help services, and concerns over whether a help service would understand the respondent's cultural background.
Hodgins et al.	2016	Pathological gamblers in Canada	▪ Treatment availability; ▪ Cost of treatment.
Kaufman et al.	2017	Female problem gamblers who had received cognitive behavioural therapy for their problem gambling in the UK	▪ Time constraints; ▪ Time to treatment (i.e., a waiting list); ▪ Distance to the treatment centre; ▪ Childcare responsibilities;

Author	Year	Sample	Findings
			▪ Financial costs; ▪ Lack of information; ▪ Perceived failures amongst healthcare professionals to diagnose problem gambling and signpost to appropriate services.
Piquette-Tomei et al.	2008	Female problem gamblers attending a counselling group in Canada	▪ Distance to treatment; ▪ Difficulties travelling.
Nash et al.	2012	Gamblers and affected others in the UK	▪ Lack of awareness of local help services, including amongst health professionals; ▪ Distance to services; ▪ Low availability of support services compared with the prevalence of gambling facilities in the local area; ▪ Time constraints associated with family commitments; ▪ Support services being oversubscribed; and ▪ Lack of help services that met cultural needs and provided gambling-specific support.
Social barriers			
Kaufman et al.	2017	Female problem gamblers who had received cognitive behavioural therapy for their problem gambling in the UK	▪ Public stigma
Piquette-Tomei et al.	2008	Female problem gamblers attending a counselling group in Canada	▪ Interpersonal barriers to accessing treatment, e.g., a relationship with a partner including having to produce excuses as to where one is going.
Hodgins et al.	2009	Pathological gamblers in Canada	▪ Public stigma
Ronzitti et al.	2017	Pathological gamblers who dropped out of treatment before starting treatment, as well as those who completed treatment in the UK	▪ Due to high levels of dropout from treatment before the treatment starts among single people, the authors suggest this might be caused by lower levels of social support available to single individuals.
Barriers to continuing access to and engagement with treatment services			
Personal barriers			

Author	Year	Sample	Findings
Alvarez-Moya et al.	2011	Pathological gamblers in Spain	▪ High impulsiveness, and low disorderliness (denoting traits such as strict regimentation, organisation, rigidity and overcontrol), each significantly predicted dropout during gambling treatment.
Carlbring et al.	2009	Problem gamblers in Sweden	▪ Being unwell; ▪ Lack of motivation.
Jiménez-Murcia et al.	2015	Pathological gamblers receiving group CBT in Spain	▪ Younger age, low educational level and a longer duration of gambling episodes were each strongly associated with dropout; ▪ Reward dependence and self-transcendence. Reward dependence denotes a propensity to exhibit behaviours in reaction to reward by others. Self-transcendence relates to spirituality and transpersonal experience. Lower reward dependence and higher self-transcendence were associated with failing to complete the entire treatment programme.
Knezevic et al.	2012	Community-recruited pathological gamblers and treatment-enrolled pathological gamblers in Canada	▪ High impulsivity
Kovanen et al.	2016	Pathological gamblers in Finland	▪ Smoking. this finding aligned with prior research that had found that the urge to gamble is associated with relapse, and smoking is associated with a greater gambling urge, a lower capacity to control gambling and higher gambling severity.
Najavits et al.	2013	Seven participants with pathological gambling and post-traumatic stress disorder (PTSD) who were offered treatment	▪ Work status: one participant became unable to continue treatment due to moving from unemployment into work.
Ramos-Grille et al.	2013	Pathological gamblers in Spain	▪ Higher levels of neuroticism and lower levels of agreeableness and conscientiousness.
Ronzitti et al.	2017	Pathological gamblers who dropped out of treatment before starting treatment, as well as those who completed treatment in the UK	▪ Young age; ▪ Unemployment; ▪ Smoking; ▪ Mild severity of gambling addiction at baseline.
Smith et al.	2010	Problem gamblers in South Australia	▪ Greater urge to gamble; ▪ Higher life impairment due to gambling; ▪ Higher levels of sensation-seeking traits.

Author	Year	Sample	Findings
Boughton et al.	2017	Women with self-identified gambling problems in Canada	▪ Illness and health problems.
Dunn et al.	2012	Problem gamblers in Australia	▪ Gambling motivations relating to gambling as to social activity; ▪ Low readiness to change; ▪ Distance to services.
Therapeutic barriers			
Carlbring et al.	2010	Problem gamblers in Sweden	▪ Dislike of the group session format.
Jiménez-Murcia et al.	2012	Male pathological gamblers receiving CBT in Spain	▪ Addition of exposure and response prevention therapy (ERP) to the CBT-based therapy.
Petry et al.	2016	Problem gamblers with substance abuse	▪ Lengthy interventions.
Smith et al.	2018	Problem gamblers in Australia	▪ Use of highly structured, goal-oriented techniques of exposure therapy and cognitive therapy for participants with other conditions and high levels of psychological disturbance prior to treatment; ▪ Imaginal exposure tasks (in which the participant is instructed to imagine a typical gambling scenario) scheduled early in treatment.
Dunn et al.	2012	Problem gamblers in Australia	▪ Therapist leaving in the middle of treatment process – failure to establish relationship with a new therapist; ▪ Exposure-oriented homework tasks in the treatment programme were described as generating a fear of relapse.
Practical barriers			
Carlbring et al.	2010	Problem gamblers in Sweden	▪ Difficulties with travelling to treatment; ▪ Time constraints.
Najavits et al.	2013	Seven participants with pathological gambling and post-traumatic stress disorder (PTSD) who were offered treatment	▪ Difficulties with travelling to treatment.
Dunn et al.	2012	Problem gamblers in Australia	▪ Changes in family circumstances resulting in time constraints.
Ronzitti et al.	2017	Pathological gamblers in the UK	▪ Being single – having less social support available to people who do not have families;

Author	Year	Sample	Findings
			▪ Having family history of problem gambling.

Table 6: Enablers to accessing treatment services

Author	Year	Sample	Findings
Enablers to initial access to treatment services			
Personal enablers			
Barratt et al.	2014	Problem gamblers in Australia	▪ Lower socio-economic status enables face-to-face help seeking; ▪ Lower levels of personal wellbeing enable telephone-based help seeking.
Gainsbury et al.	2014	Problem gamblers in Australia	▪ Being born in Australia; ▪ Being divorced.
Horch and Hodgins	2015	Problem gamblers in Canada	▪ Being male; ▪ Having a higher income; ▪ Self-stigma (which the authors define as the internalisation of public stigma); ▪ More severe gambling problems; and ▪ Positive attitudes towards treatment.
Jamieson et al.	2011	Problem gamblers in Canada	▪ Fitting an emotionally vulnerable profile (characterised, for example, by elevated rates of depression and anxiety disorders).
Kim et al.	2016	Problem gamblers in New Zealand	▪ Being male and contacting the helpline.
Kowatch and Hodgins	2015	Pathological gamblers in Canada	▪ Gambling problem severity; and ▪ Readiness or motivation to change.
Ledgerwood et al.	2017	Pathological gamblers in the USA	▪ Greater self-reported overall difficulty in functioning; ▪ More difficulties in relating to self and others; and ▪ Higher levels of anxiety and depression; ▪ Self-reported difficulties in daily living; ▪ Higher levels of self-reported impulsivity and addiction; ▪ Clinician-reported past treatment failure; ▪ Co-occurring disorders, impulsivity, mental and physical exhaustion and gambling urges; ▪ Clinician-reported co-occurring disorders and impulsivity.

Author	Year	Sample	Findings
Nelson et al.	2010	Problem gamblers who had enrolled in the Missouri Voluntary Exclusion Program, USA, (which enabled self-banning from casinos)	▪ Negative financial consequences of problem gambling; ▪ Lack of self-control with regards to gambling; and ▪ Recognition of the gambling problem.
Rodda and Lubman	2014	Problem gamblers in Australia accessing online-based treatment	▪ Relative anonymity of online services is an enabler for people from minority cultures.
Suurvali et al.	2012	Problem gamblers in Canada	▪ 23% of respondents identified financial issues as a reason for seeking treatment for problem gambling; ▪ 8% identified family or relationship issues; ▪ Lack of control; ▪ Negative life impacts of gambling and involvement in illegal activities; ▪ Being employed.
Weinstock et al.	2011	Unique callers to a gambling helpline in West Virginia, USA	▪ Comorbid psychiatric disorders; ▪ More gambling debt; ▪ More severe gambling symptoms; ▪ Legal problems; ▪ Age; ▪ Education level; ▪ Previously seeking help for gambling problems.
Najavits	2010	-	▪ PTSD.
Hing and Nuske	2012	Problem gamblers in Australia	▪ 72% of the respondents reported that their decision to attend therapy was precipitated by an 'event'; ▪ Financial problems were identified by 33% of the respondents; ▪ 8% highlighted suicidal ideation; ▪ 3% reported losing their job.
Tse et al.	2013	-	▪ Hope of recovery; and ▪ Confidence in the treatment service.

Author	Year	Sample	Findings
Therapeutic enablers			
LaBrie et al.	2012	Problem gamblers in the USA	▪ Interventions in which participants received a brief self-help toolkit intervention designed to enhance motivation to change gambling behaviours.
Nelson et al.	2010	Participants who enrolled in the Missouri Voluntary Exclusion Program	▪ Engagement in psychological treatments.
Najavits	2010	-	▪ Some treatment modalities, e.g., individual therapy and psychiatric medication; ▪ Treatment delivered as classes.
Rodda et al.	2013	Problem gamblers in Australia	▪ Online treatment being confidential and secure treatment alternative; ▪ Desirability of online treatment due to the extended delivery time; the ability to retain and review transcripts; and, the act of writing as compared with speaking; ▪ Online counselling was described as more comfortable and relaxed than telephone or face-to-face counselling.
Bücker et al.	2018	-	▪ Confidentiality; ▪ Evidence-based treatment practice; ▪ Anonymity and low entry threshold of Internet-based treatment; ▪ Familiarity of young people with Internet technology; and, ▪ Privacy afforded by telephone interventions.
Gainsbury et al.	2014	-	
Parhami et al.	2012	-	
Rodda & Lubman	2014	-	
Tse et al.	2013	-	
Practical enablers			
Hing et al.	2012	Indigenous Australian problem gamblers	▪ 88% of respondents indicated having a local Aboriginal point of contact whose role is to assist people to seek help for problem gambling; ▪ 88% indicated having a local Aboriginal gambling counselling service.
Hing et al.	2014	Indigenous Australian problem gamblers	▪ Local Aboriginal gambling counselling service (85%); ▪ Local Aboriginal gambling liaison person (85%).

Author	Year	Sample	Findings
Rodda and Lubman	2014	Problem gamblers in Australia	▪ Online chat-based services in after-work hours; ▪ Email-based service during work hours; ▪ Choice during sign-in process between registering and signing in anonymously.
Weinstock et al.	2011	Unique callers to a gambling helpline in West Virginia, USA	▪ Administrative factors (e.g. the helpline staff were trained in establishing rapport and in pathological gambling; "warm transfer" procedures were deployed to facilitate referrals; the assessments were arranged within 72 hours of the helpline call; and, the in-person assessment was offered as free of charge to the caller).
Hing and Nuske	2012	Problem gamblers in Australia	▪ 33% of participants identified written information at a venue' ▪ 28% identified gambling helpline; and, ▪ 6% identified general media.
Rodda et al.	2013	Problem gamblers in Australia	▪ Easy access of online services; ▪ Convenience and 24-hour availability of online services; ▪ Availability of online services when experiencing problems; ▪ Ability to receive services in the comfort of home; ▪ Low-cost of online services; ▪ Information available about services (e.g. online and television advertisements, search engines, gambling venues and other websites).
Piquette-Tomei et al.	2008	Female problem gamblers who attended a counselling group in Canada	▪ Greater visibility of treatment services; ▪ More treatment centres and counsellors who are specialists in problem gambling.

Author	Year	Sample	Findings
Bücker et al.	2018	-	▪ Establishment of more treatment services; ▪ Availability of culturally sensitive services; ▪ Accessibility of online and telephone treatment interventions; ▪ Optimising treatment sign-up processes by reducing the amount of information required and deploying motivation enhancement techniques; ▪ Public awareness campaigns about problem gambling and treatment options; ▪ Targeted advertising of treatment services; ▪ More provision of information on problem gambling and treatment options; ▪ Training for health professionals, debt advice agencies and community contact points on identifying problem gambling and treatment options; and ▪ Routine assessment of gambling behaviours in psychiatric assessments.
Buchner et al.	2015	-	
Dunn et al.	2012	-	
Echeburúa et al.	2011	-	
Gainsbury et al.	2014	-	
Kaufman et al.	2017	-	
Nash et al.	2018	-	
Oei et al.	2018	-	
Parhami et al.	2012	-	
Tse et al.	2013	-	
Social enablers			
Kowatch and Hodgins	2015	Pathological gamblers in Canada	▪ Being more conscious of public awareness information about problem gambling; ▪ Having non-gambling social role models.
Nelson et al.	2010	Participants who enrolled in the Missouri Voluntary Exclusion Program in the USA	▪ 23% of participants provided reasons for enrolment that related to the influence of others, including: coercion by others; peer-encouragement from someone else who had enrolled; and support from others.
Weinstock et al.	2011	Unique callers to a gambling helpline in West Virginia, USA	▪ Pressure from a spouse; ▪ Pressure from the wider family.
Dunn et al.	2012	Problem gamblers in Australia	▪ Being referred to therapy by a professional, such as a counsellor, social worker or hospital staff; ▪ Having been provided with treatment-related information by a friend or family member.

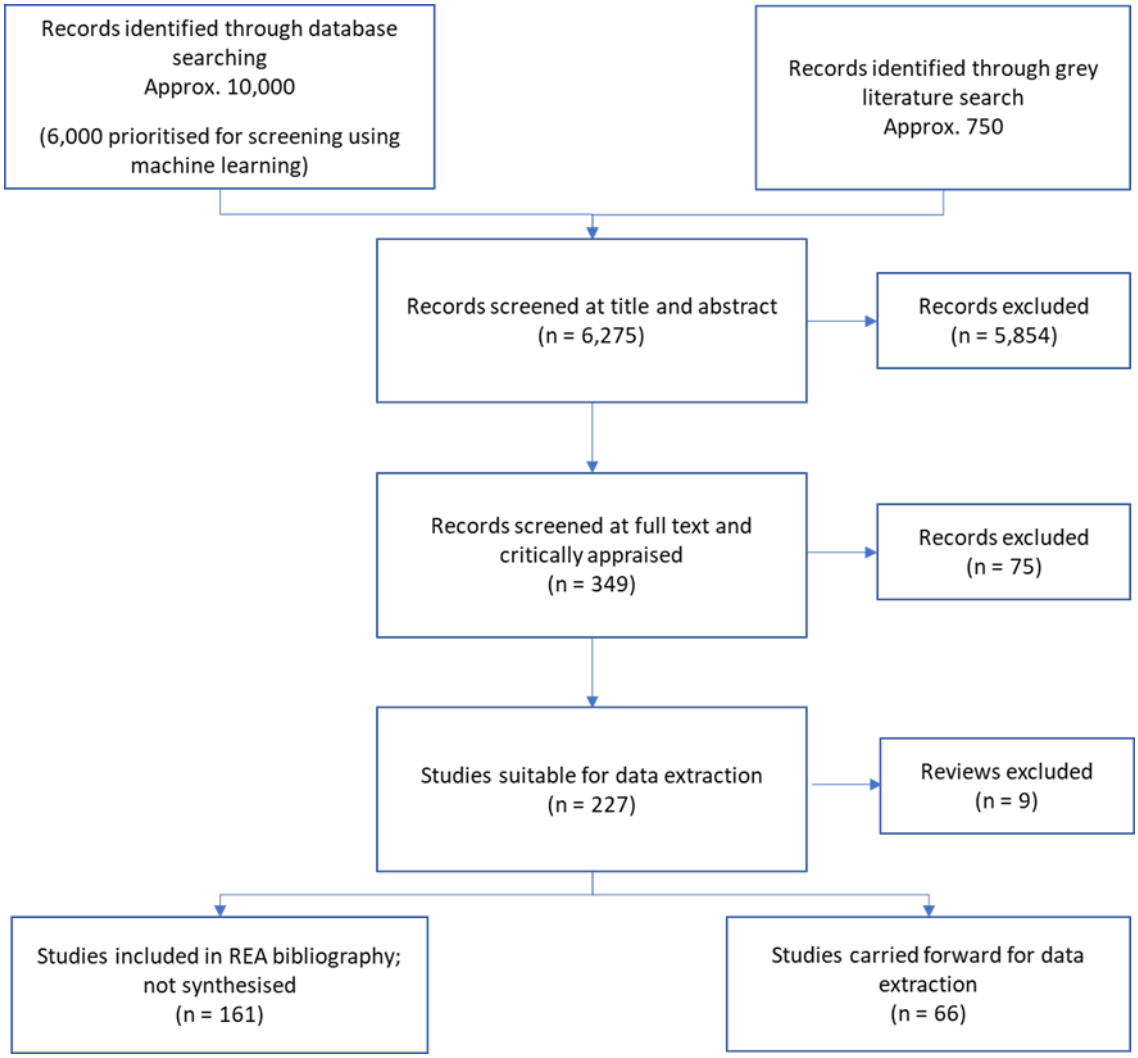
Author	Year	Sample	Findings
Hing and Nuske	2012	Problem gamblers in Australia	▪ 11% attributed their decision to enrol to someone else, such as a partner or counsellor; ▪ In addition, upon being asked how they learnt about the specific treatment (option to self-bar), 42% of the whole sample identified a counsellor, 22% family, 19% friends, 11% acknowledged venue personnel and 3% other venue patrons.
Buchner et al.	2015	-	▪ Concerned significant others; and ▪ De-stigmatisation of problem gambling
Jiménez-Murcia et al.	2017	Male patients with gambling disorder in Spain	
Enablers to continuing access to and engagement with treatment services			
Personal enablers			
Gomes and Pascual-Leone	2009	Pathological gamblers in Canada	▪ More severe gambling problems; ▪ Greater involvement with Gamblers Anonymous; ▪ Higher depressed affect; and ▪ Greater emotional awareness.
Toneatto and Dragonetti	2008	Problem gamblers in Canada	▪ Adopting an abstinence treatment goal was related to greater rates of abstinence throughout treatment.
Avery and Davis	2008	Problem gamblers in the USA	▪ Feeling understood by people with the same problem; and ▪ Feelings of belonging.

Author	Year	Sample	Findings
Piquette-Tomei et al.	2008	Female problem gamblers who attended a counselling group in Canada	▪ Feeling accepted within the group; ▪ Being alongside women who had had similar experiences enabled them to achieve self-acceptance, which in turn enabled them to accept others; ▪ All participants highlighted that that they felt most comfortable in an all-female setting.
Therapeutic enablers			
Boughton et al.	2017	Problem gamblers in Canada	▪ A workbook designed to address gambling problems was administered to study participants; females with self-identified gambling concerns. The workbook facilitated engagement in recovery. One participant reported that they perceived the weekly workbook packages as “an incentive not to gamble because I wanted to give a good report”. The workbook represented an ongoing source of support for participants. One participant describing the workbooks as “almost like a friend I can turn to”.
Dunn et al.	2012	Problem gamblers in Australia	▪ Addressing shame, embarrassment and fears of stigma in patients in the early stages of therapy; ▪ Therapy should seek to generate adaptive strategies for obtaining the benefits (e.g., pleasure, engagement in social interaction, and avoidance of personal problems) that were currently provided by gambling.
Korman et al.	2008	Problem gamblers in Canada	▪ Randomised problem gamblers in Canada with comorbid anger problems to either anger and addiction treatment (A&A) addressing anger, gambling and substance use or, a specialised treatment-as-usual condition (TAU) addressing gambling and substance use. Engagement in treatment was superior in the A&A condition compared with the TAU condition. In the A&A condition, active engagement strategies were used including repeated calling and motivation enhancement; these strategies were omitted in the TAU condition.

Author	Year	Sample	Findings
Oakes et al.	2012	Problem gamblers in Australia	▪ Group format and the short time-frame of the treatment.
Piquette and Norman	2013	Problem gamblers in Canada - women who attended all-female group counselling	▪ Importance of the role of the facilitator in the group counselling. The facilitator was described as establishing a supportive and safe environment. The facilitator's engaged, collaborative role in the therapeutic process was described as helpful.
Piquette-Tomei et al.	2008	Female problem gamblers in Canada	▪ Nourishment, such as tea and coffee, contributed to the establishment of a comfortable environment that facilitated the exchange of information; ▪ Establishment of a safe space. It was expressed that the facilitator had a role in establishing a safe space; ▪ Participants suggested the following improvements to the therapy format: guest speakers; psycho-educational presentations; viewing videos before discussion; and topic nights; ▪ Journalising. One participant reported that the journalising was "weekly homework that forces one to document feelings, behaviours and accountability".
Echeburúa et al.	2011	-	▪ Integrated programmes including pharmacotherapy and psychosocial treatments; ▪ Motivational enhancement techniques aimed at increasing motivation to change and treatment compliance; ▪ Reassuring atmosphere in treatment; ▪ Individual therapy rather than group treatment for those at risk of treatment withdrawal; ▪ Imparting of selected strategies to maximise the impact of specific treatments (such as cognitive strategies for inhibitory control); ▪ Treatment that meets the specific needs of particular populations (for example, therapy for women should be contextually sensitive, taking into account the challenges that affect them); ▪ Holistic treatment approach; ▪ Structured daily sessions; ▪ Constant supervision in treatment; and ▪ Treatment delivery in an environment in which distracting everyday stressors and gambling triggers were removed.
Jiménez-Murcia et al.	2015	-	
Jiménez-Murcia et al.	2013	-	
Kaufman et al.	2017	-	
Knezevic et al.	2012	-	
Morefield et al.	2014	-	
Ramos-Grille et al.	2013	-	
Ronzitti et al.	2017	-	
Smith et al.	2018	-	

Author	Year	Sample	Findings
Social enablers			
Jiménez-Murcia et al.	2017	Male patients with gambling disorder in Spain	▪ Interpersonal (e.g., spouse, family or friends) support.
Avery and Davis	2008		▪ Informal support systems including members of Gamblers Anonymous, friends, spouses and partners; ▪ Professional helpers, such as mental health counsellors and psychologists, religious groups and religious leaders.
Dunn et al.	2012	Problem gamblers in Australia	▪ Support from people respondents can confide in (e.g. family members).
Piquette and Norman	2013	Problem gamblers in Canada	▪ Positive relationships respondents developed with other attendees at group counselling enabled them to feel comfortable and safe and facilitated recovery.
Buchner et al.	2015	-	▪ Not engaging concerned significant others in a treatment plan not to demotivate problem gamblers to engage in treatment.
Jiménez-Murcia et al.	2015	-	▪ Appropriately managed involvement of family members in problem gambling treatment.

Figure 1: PRISMA Flowchart



Appendix B. Database search strategy

Key Words for Search Strings

Question	Components	Key words and synonyms
1. What is the size of the problem gambling population that is engaged in any form of treatment or support?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Engagement	(engag* OR learn* OR absorb* OR complet* OR commit* OR assur* OR oblig* OR undert*)

Question	Components	Key words and synonyms
2. What are the characteristics of people not engaged in any form of treatment or support?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Not engaged	(need OR avoid OR finish* OR not take up OR not engag* OR not receiv* OR access* OR unmet need OR rational* OR reason* OR motiv*)

Question	Components	Key words and synonyms
3. What are the geographic variations in the level of demand for treatment and support of problem gamblers?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Need for treatment	(need OR avoid OR finish* OR not take up OR not engag* OR not receiv* OR access*)
	4. Inequality	(inequal* OR unavailab* OR equal* OR lack* OR austerity OR cuts)

Question	Components	Key words and synonyms
4. How are problem gamblers referred for treatment and support?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Referral process	(refer* OR e-Refer* OR recommend* OR compulsory OR signpost* OR sign-post* OR improv* OR enhance*)

Question	Components	Key words and synonyms
5. How do treatment and support services measure effectiveness?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Engagement	(engag* OR learn* OR absorb* OR complet* OR commit* OR assur* OR oblig* OR undert* OR help seeking)
	4 Completion/ outcome	(harm reduction OR abstinen* OR complet* OR relaps* OR improv* OR readmi* OR stop* OR avoid* OR deter* OR expenditure* OR cost*)

Question	Components	Key words and synonyms
6. How, if at all, is service access discussed or explored?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Attendance	(attend* OR start OR begin* OR commenc* OR enrol* OR embark* OR initiat* OR engag*)

Question	Components	Key words and synonyms
7. What are the barriers to accessibility of treatment and support for problem gamblers? **a. Categorised by service type, demography, socioeconomic characteristics.**	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Attendance	(attend* OR start OR begin* OR commenc* OR enrol* OR embark* OR initiat* or engage*)
	4 Engagement	(engag* OR learn* OR absorb* OR complet* OR commit* OR assur* OR oblig* OR undert*)
	5 Completion/ outcome	(harm reduction OR abstinen* OR complet* OR relaps* OR improv* OR readmi* OR stop* OR avoid* OR deter* OR expenditure* OR cost*)
	6 Barriers	(barrier* OR restrict* OR difficult* OR block OR deter* OR reduc* OR stop OR prevent*)

Question	Components	Key words and synonyms
8. What mechanisms exist to maximise access to treatment and support?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Attendance	(attend* OR start OR begin* OR commenc* OR enrol* OR embark* OR initiat* or engage*)
	4 Engagement	(engag* OR learn* OR absorb* OR complet* OR commit* OR assur* OR oblig* OR undert* OR help seeking)
	5 Completion/ outcome	(harm reduction OR abstinen* OR complet* OR relaps* OR improv* OR readmi* OR stop* OR avoid* OR deter* OR expenditure* OR cost*)
	6 Enablers	(enabl* OR facilitat* OR promot* OR enhanc* OR improv* optim* OR increas*)

Question	Components	Key words and synonyms
9. What mechanisms exist to maximise cost-effectiveness of treatment and support?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Treatment/ support	(treat* OR support* OR rehab* OR help OR medic* OR therap* OR counsel* OR intervent* OR service* OR innovat* OR addict*)
	3 Cost-effectiveness	(cost* OR pric* OR fund* OR cost-effectiv* OR economic* OR return on investment OR ROI OR cost-benefit OR SROI)

Question	Components	Key words and synonyms
10. Is aftercare available and accessible, who is it accessed by and what are the gaps in the aftercare services?	1 Problem gamblers	(gambl*) AND (prob* OR addict* OR harm OR pathological OR concern OR excess OR uncontrol*OR illegal OR crim* OR compul* OR mental disorder OR mental health OR risk OR behav* OR PTSD OR depression)
	2 Aftercare services	(follow-up OR detox* OR rehab* OR modul* OR community care OR anonymous OR therap*)
	3 Attendance	(attend* OR start OR begin* OR commenc* OR enrol* OR embark* OR initiat* or engage*)
	4 Barriers	(barrier* OR restrict* OR difficult* OR block OR deter* OR reduc* OR stop OR prevent*)
	5 Enablers	(enabl* OR facilitat* OR promot* OR enhanc* OR improv* optim* OR increas*)

Appendix C. Documents included in review for data extraction and synthesis

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