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REVIEW ARTICLE

Gambling in women: A systematic review of interventions and prevention approaches

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ABSTRACT

Background: Gambling disorder (GD) is a behavioral addiction with significant psychological, social, and economic consequences. Despite growing female participation and distinct gambling characteristics, research and interventions largely male-centered, overlooking women-specific factors. *Objectives:* This systematic review synthesizes evidence on prevention and treatment interventions for women with GD, assessing their effectiveness on gambling behaviors, cognitive and psychological outcomes, and identifying barriers related to access, adherence, and gender-sensitive design. *Method:* A systematic search in PubMed, PsycINFO, and Web of Science (up to September 2025) identified quantitative studies reporting female-specific outcomes in gambling prevention or treatment. Study quality was appraised using National Heart, Lung, and Blood Institute tools, and data on intervention characteristics, outcomes, and participant profiles were extracted. *Results:* Eighteen studies met the inclusion criteria (five prevention, thirteen treatment). Prevention programs, mostly universal and adolescent-focused, improved gambling knowledge, cognitive distortions, and short term gambling frequency; however, socioemotional effects were inconsistent. Only one study included follow-up assessment. Treatment studies, predominantly cognitive behavioral therapy (CBT)–based, reduced gambling severity and psychological distress, although dropout and relapse rates were higher among women with greater psychopathology or limited support. Person-centered approaches benefited of tailoring interventions to individual profiles. No studies systematically applied gender-sensitive frameworks or disaggregated outcomes by sex in prevention. *Discussion and Conclusion:* Prevention and treatment programs can benefit women, but standard interventions insufficiently address their unique needs. Gender-sensitive, individualized strategies, inclusion of socioemotional factors, and long-term evaluations are essential to enhance outcomes and inform inclusive public health policies.

KEYWORDS

gambling disorder, women, prevention, gender-sensitive interventions

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INTRODUCTION

Gambling disorder (GD) is recognized as a behavioral addiction by the American Psychiatric Association (APA, 2013, 2022), characterized by a persistent, maladaptive, and uncontrollable pattern of gambling that generates negative consequences across multiple life domains, including psychological, social, academic, occupational, and economic spheres. It constitutes a global public health problem (World Health Organization [WHO], 2018; Blank, Baxter, Woods, & Goyder, 2021; Wardle, Reith, Langham, & Rogers, 2019; Wardle et al., 2024), with an estimated worldwide prevalence of 1.4% (Tran et al., 2024). Recent work outlining research priorities in the field has further emphasized the importance of advancing the evidence base on gambling-related harms and interventions (Bowden-Jones, Brandt, Gehlert, Cowlishaw, & Ronzitti, 2022; Czako, Demetrovics, Griffiths, & Király, 2025).

Despite its magnitude, GD has historically been studied and addressed primarily in male populations. Available evidence suggests that many prevention and intervention programs have been designed with a focus on men, providing limited consideration of female-specific factors in gambling behavior (Delfabbro, 2000; Kairouz, Sowad, Lambo, Le Mesurier, & Nadeau, 2022; Khanbhai, Smith, & Battersby, 2017). In this regard, gender has traditionally been treated primarily as a demographic marker, merely descriptive, without accounting for the role of the sociocultural context in shaping gambling experiences and the associated harms (Kairouz et al., 2022). This lack of attention to women's particularities has rendered their experiences largely invisible and may have hindered the response to their specific needs, despite the fact that female participation in gambling—currently 37.4% compared to 49.1% in men (Tran et al., 2024)—and the associated harms are increasing in several countries (Castrén, Heiskanen, & Salonen, 2018; McCarthy, Thomas, Bellinger, & Cassidy, 2019; Ukhova & Prever, 2025; Wardle, 2017). Overall, the prevalence of GD is consistently higher in men across countries, with estimates ranging from approximately 0.6–3.0% in men and from 0.2 to 1.2% in women, depending on the country and measurement methodology (Afifi, Cox, Martens, Sareen, & Enns, 2010; Carneiro et al., 2020; Wejbera, Wölfling, Dreier, Duven, & Müller, 2021; Abbott, Romild, & Volberg, 2018; Gabellini, Lucchini, & Gattoni, 2023; Tran et al., 2024).

Several studies have highlighted gender differences in motivations, progression, and comorbidity. While men often gamble seeking excitement, competitiveness, or monetary reward (Lamont & Hing, 2018), women frequently gamble as a coping strategy for emotional distress, loneliness, grief, exposure to violence, or caregiving burden (Dowling et al., 2016; Håkansson, 2016; McCarthy et al., 2023; Vázquez-Fernández, 2012). These differences are also reflected in preferred gambling modalities: women tend to participate in non-strategic forms such as bingo, lottery, or slot machines (Jiménez-Murcia, 2020a; Lara-Huallipe et al., 2022), whereas men tend to engage in sports betting, card games, horse racing, and skill-based gambling activities (Hing, Russell, Tolchard, & Nower, 2016a; Hing, Russell, Vitartas, & Lamont, 2016b), although interest in sports betting is rising among young women (Baño et al., 2021).

Regarding clinical course, women typically initiate gambling later than men, but their progression toward severe forms is more rapid, a phenomenon described as the telescoping effect (Girone et al., 2024; Jiménez-Murcia, Granero, & Fernández-Aranda, 2020b; Slutske, Blaszczynski, & Martin, 2009). Additionally, women present higher rates of comorbidity with depression, anxiety, suicidal behaviors, and maladaptive cognitive patterns, such as irrational beliefs about chance (Chóliz, 2006; Desai & Potenza, 2008; Husky, Michel, Richard, Guignard, & Beck, 2015). The most frequent sociodemographic profile includes single or separated women, with lower socioeconomic status, limited social support, and, in many cases, a history of traumatic experiences, including exposure to gender-based violence (Dowling et al., 2016; Dirección General de Ordenación del Juego [DGOJ], 2017; Zhai, Duenas, Wampler, & Potenza, 2020).

These factors, together with role overload and social stigma—manifested as guilt, shame, and fear of judgment—hinder help-seeking and contribute to the low representation of women in treatment programs (Baño et al., 2021; McCormack, Shorter, & Griffiths, 2014). Moreover, most preventive campaigns rarely address structural factors such as poverty, violence, or caregiving burden, despite their relevance to the phenomenon (Leung, Chechelli, & Prever, 2024; Ronchi, Grioni, & Manigrasso, 2023).

Recent priority-setting initiatives in gambling research have highlighted the need for more targeted investigation of vulnerable and underrepresented populations, as well as improved development and evaluation of prevention and treatment interventions (Bowden-Jones et al., 2022; Czako et al., 2025). In this context, a gender-focused analysis is essential to understand the experiences and risks of GD in women, highlighting the need to design prevention and intervention strategies tailored to their characteristics and gambling patterns (Grant & Kim, 2002; Tavares, Zilberman, & y el-Guebaly, 2003). The primary aim of this systematic review is to consolidate the current knowledge on prevention and intervention initiatives targeting women with GD, evaluating their effectiveness and the changes in gambling behavior following their implementation. Complementarily, the review examines the impact of these interventions on associated psychological variables, as well as challenges related to treatment access and social stigma. Through this approach, we aim to identify the strengths and limitations of existing approaches, provide a foundation for developing gender-sensitive strategies, and contribute to the advancement of more inclusive clinical practices and public policies.

METHOD

Study design

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and

Meta-Analyses (PRISMA; Page et al., 2021) guidelines and was registered in the Prospective Register of Systematic Reviews (PROSPERO) database with the registration number **CRD42024538858** on the 3rd of May 2024.

Data sources and search strategy

The literature search strategy was conducted in PubMed, PsycINFO, and Web of Science Core Collection, covering publications up to May 2024. Subsequently, the search was updated on September 11, 2025, and again on February 17, 2026. The timeframe for the literature search was selected to capture contemporary research reflecting current diagnostic frameworks and intervention approaches in the field of gambling disorder.

This search strategy, detailed in Appendix Table A1, combined terms related to (1) participants: "women", "woman", "female*", or "girl*", (2) intervention: "intervention", "prevent*", or "treat*", and (3) condition: "gambl*", "pathological gambling", or "problem gambling". The results were limited to peer-reviewed articles in English/Spanish and Title/Abstract. In addition, we searched the reference lists of included studies to identify any potentially relevant articles that were not captured in the initial search.

Eligibility criteria

Regarding the selection of articles, the following inclusion criteria were defined according to the PICOS framework of evidence-based medicine (Methley, Campbell, Chew-Graham, McNally, & Cheraghi-Sohi, 2014):

- Participants: The subjects of the studies included females who received a gambling intervention/prevention program. Studies were excluded if they did not report outcomes specifically for women, or if female representation in the sample was low (less than 15%). In addition, studies that did not provide gender-specific outcomes but found no statistically significant differences between men and women were considered eligible, as their results could be extrapolated to both sexes.
- Interventions: The interventions included in this review were psychological or psychosocial interventions aimed at preventing or treating gambling-related problems. They could be individual or group-based and conducted either face-to-face or online. Blended interventions (i.e., a combination of online and face-to-face sessions) were also included. Pharmacological interventions, however, were not considered. There were no restrictions on the duration of the interventions, and no inclusion or exclusion criteria were applied regarding comparators or controls.
- Outcomes: Studies had to explicitly and quantitatively report gambling-related outcomes, such as gambling frequency, severity of gambling and amount of money gambled, and could optionally report other psychological variables, such as anxiety or depression. No restrictions were applied regarding the methods used to measure these variables.
- Study design: We included quantitative intervention studies, including randomized controlled trials (RCTs), quasi-experimental designs, and pre–post studies without a control group, provided they focused on gambling prevention or treatment programs. Studies reporting primary data from protocolized or clearly described interventions with demonstrated pre–post outcomes were eligible. Pilot studies were also included if they involved an intervention. Exclusion criteria comprised studies that did not provide original data, reported only qualitative results, were not available in English or Spanish, or described interventions with insufficient or inaccessible information.

Study selection

Two review authors (ICG and CM) independently screened titles and abstracts to identify potentially relevant studies according to the predefined inclusion and exclusion criteria. Any disagreements at this stage were resolved by two additional review authors (MB and AM-B). Full texts of all potentially eligible studies were then obtained, and ICG and CM independently assessed these for inclusion. Discrepancies were resolved through discussion or consultation with another review author (AM-B, MB, or ER). When full-text articles were not available, we contacted the corresponding authors and allowed a response period of one month. Studies for which full-text access could not be obtained were excluded from the review.

Risk of bias

The quality of the included studies was evaluated using the assessment tool developed by the *National Heart, Lung, and Blood Institute* (NHLBI, 2014), which provides separate checklists for controlled intervention trials and for single-arm designs. This approach enabled us to appraise the risk of bias in both types of studies.

Two reviewers (AM-B and MBR) independently carried out the quality assessment. Any disagreements were addressed through discussion and, when necessary, resolved with the involvement of a third author (ICG). Detailed results of the appraisal are presented in the Appendix Tables A2 and A3, together with links to the assessment tools and their criteria.

Data extraction

We extracted the following information from the included studies: authors, year of publication, country, study design, number of participants, age, gender/sex, type of population (e.g., general population, clinical), intervention details (setting, frequency, duration), comparator (if applicable), primary outcomes and results (i.e., gambling related-measures), and secondary outcomes (i.e., other psychological variables, if reported). Two review authors (ICG and CGM) extracted the data. Any disagreements between the review authors were resolved through discussion and, when necessary, by consulting other review authors (MB and AM-B).

RESULTS

Selection and inclusion of studies

Figure 1 shows the Flowchart of the study selection process. The initial database search yielded a total of 1,483 potentially relevant studies. After removing duplicates and conducting the first screening based on Title and Abstract, 85 studies were retrieved and assessed for eligibility. After the screening, most of the excluded articles were not included because they did not contain women-specific data, the study design did not meet our predefined criteria, or the main outcome of interest (gambling) was not measured. After applying these criteria, 15 studies were retained. Additionally, 3 studies were included through other sources, such as references from included articles. Meanwhile, the updated search conducted in September 2025 yielded 169 records, which were reduced to 44 after duplicate removal (56 records) and screening by title and abstract. A final update performed on February 17, 2026 retrieved 65 additional records. After removing duplicates, 37 records remained. Screening of titles and abstracts excluded 36 studies, and one article was assessed in full text and excluded because it did not report female-specific data. Consequently, no additional studies met the inclusion criteria following the final search update.

Summary of the findings

Table 1 provides a summary of the 18 studies included in this systematic review. The years of publication ranged from 2006 to 2022. Of the included studies, nine (50.0%) were conducted in Europe [Spain (n = 5, 27.8%; Chóliz, Marcos, & Bueno, 2022; Lara-Huallipe et al., 2022; Baño et al., 2021; Valenciano-Mendoza et al., 2021; Granero et al., 2022), Italy (n = 1, 5.6%; Donati et al., 2022), Finland (n = 1, 5.6%; Castrén et al., 2013), and Croatia (n = 2, 11.1%; Huic, Kranzelic, Dodig Hundric, & Ricijas, 2017; Dodig Hundric, Mandic, & Ricijas, 2021); five (27.8%) in Oceania [Australia (n = 4, 22.2%; Armstrong, Rockloff, Browne, & Blaszczynski, 2020; Dowling,

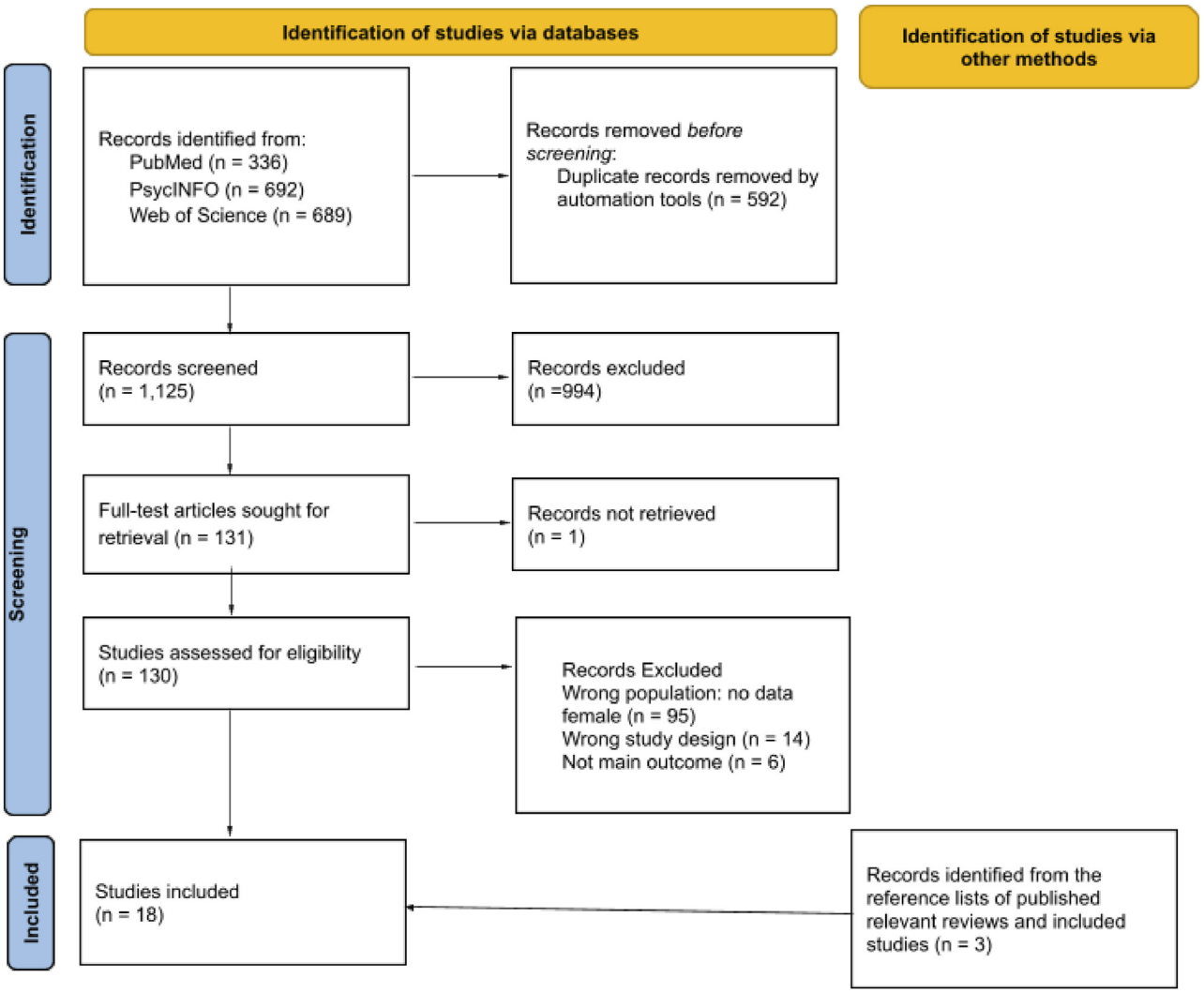

Fig. 1. PRISMA 2020 flow diagram for new systematic reviews which included searches of databases
Source: Page MJ, et al. BMJ 2021; 372:n71. doi: 10.1136/bmj.n71.

Table 1. Characteristics of included studies

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
Prevention							
Celio and Lisman (2014)	$N = 136$ ($M = 19$; SD = 1.35, range 18–30 years old)	45%	RCT, 2-arm (PNF vs. attention control)	College students who gambled at least once in past 30 days	Computer-delivered Personalized Normative Feedback (PNF) program, delivered across two sessions (~60-min each). Modeled after the BASICS alcohol intervention, it provided individualized feedback on participants' gambling frequency, annual expenditure, and maximum losses compared to actual student norms and their percentile rank. The intervention targeted misperceptions of descriptive gambling norms, aiming to reduce overestimation of peer gambling. The control group received attention-matched information unrelated to gambling	- Personalized normative feedback (PNF) reduced risk-taking at 1-week follow-up compared with the attention control, as measured by the BART (adjusted pumps per trial) and PAC tasks (risk coefficient and total expenditure) - Significant group × time interactions observed (BART: $F(2,264) = 4.07$, $p = 0.02$, $\eta^2 = 0.02$; PAC risk coefficient: $F(2,264) = 3.53$, $p = 0.03$, $\eta^2 = 0.03$; PAC expenditure: $F(2,264) = 3.36$, $p = 0.04$, $\eta^2 = 0.02$) - Men wagered more than women on total expenditure (PAC), but no other significant gender effects or interactions were observed	- Perceived gambling norms (Gambling Quantity and Perceived Norms scale; frequency, annual expenditure, maximum loss) decreased significantly in the PNF group versus control at 1-week follow-up (group × time interactions: $p < 0.001$; $\eta^2 = 0.17$–0.22) - No significant effects of gender on perceived gambling norms
Chóliz et al. (2022)	$N = 2,372$ (14–19 years old)	48.8%	Single arm study	High school students from 42 Spanish schools (grades 14–19 years, mostly minors)	*Ludens* universal prevention program, 2 sessions delivered in small groups by trained psychologists, including audiovisual resources (28 video testimonies, ads, news), psychoeducation on gambling and addiction, DSM-5 criteria, "three laws of ethical gambling," risks of online gambling and marketing, and recommendations to avoid risky gambling behaviors	Ad hoc instrument for gambling frequency - Significant reductions in monthly gambling frequency (traditional and online) in both sexes (girls: $\chi^2(1) = 42.78$, $p < .001$, $\varphi = 0.14$ and $\chi^2(1) = 10.86$, $p < 0.001$, $\varphi = 0.07$, respectively; boys: $\chi^2(1) = 61.51$, $p < .001$, $\varphi = 0.17$, and $\chi^2(1) = 34.86$, $p < .001$, $\varphi = 0.13$, respectively) - Significant reductions in at-risk gambling and GD	- Program improved knowledge and attitudes about gambling, sensitizing adolescents to risks and industry practices - No iatrogenic effects reported

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
						overall. Among girls, reductions were significant for at-risk gambling ($\chi^2(1) = 9.70$, $p < .01$, $\varphi = 0.07$), but not for GD (low baseline prevalence, 0.7%→0.4%). Among boys, both at-risk and disorder rates decreased significantly - Greater benefits observed among minors than older adolescents (18–19 years) - Decrease in endorsement of DSM-5 diagnostic criteria such as preoccupation with gambling, chasing losses, escapism, and lack of control (all *ps*<.01)	
Dodig Hundric et al. (2021)	629 (mean 15.67, SD = 0.73)	33.5%	Single arm study	High school students from 18 Croatian cities	Universal, school-based youth gambling prevention program "Who Really Wins?" modified version of the pilot program (Huic et al., 2017). Comprised 9 weekly workshops (45 min each), plus 2-h interactive lecture for parents and school staff. Implemented by trained school counsellors and teachers; included psychoeducation on gambling, cognitive distortions, problem-solving, peer pressure resistance, and socio-emotional skills	The program was effective for reducing gambling-related cognitive distortions in girls (illusion of control: $t = 7.56$, $p < .001$, $d = 0.52$; probabilistic reasoning and superstition: $t = 5.26$, $p < .001$, $d = 0.36$) and improving knowledge of gambling in girls ($t = 10.6$, $p < .001$, $d = 0.73$). GPSS scores remained low with no significant change in girls, which can indicate that the low baseline gambling limited behavioral effects	The program wasn't effective for improving social and emotional skills in girls (problem-solving skills, coping with peer pressure skills, and general self-efficacy)
Donati et al. (2022)	*N* = 1894 (*M* = 15.68, SD = 0.71, range 14–19)	39%	Single arm study	High school students in Tuscany, Italy	PRIZE program: universal school-based prevention delivered by trained psychologists and health educators. Based on the dual-process model of cognitive	- Short-term (post-test): significant reduction in fallacious behavioral choices (from 74 to 15%) and increase in normative choices	Girls showed enhanced protective cognitive factors (correct gambling knowledge: $t = 5.78$, $p < .001$, $d = .29$; random events knowledge:

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
					functioning and the conceptual change model, it consisted of two didactic units (90 min each) with structured phases (introduction, individual work, guided group discussion, closure/summary). Activities targeted enhancement of cognitive protective factors (correct gambling knowledge, understanding randomness, probabilistic reasoning) and reduce affective risk factors (superstitious thinking, positive monetary gambling expectancies)	(from 26% to 85%, $\chi^2(1) = 8.71$, $p = .003$, $\varphi = .16$) in girls - Long-term (3–4-month follow-up): significant reductions in gambling frequency ($t = 6.94$, $p < .001$, $d = .33$), gambling versatility ($t = 9.84$, $p < .001$, $d = .47$), and problem gambling severity ($t = 5.47$, $p < .001$, $d = .33$) in girls. The prevalence of at-risk/problem gamblers decreased in both sexes (girls: 11% → 7%, $\chi^2(1) = 16.59$, $p < .001$, $\varphi = .25$)	$t = 22.10$, $p < .001$, $d = 1.11$; probabilistic reasoning: $t = 22.21$, $p < .001$, $d = 1.15$) and reduced affective risk factors (superstitious thinking: $t = 5.24$, $p < .001$, $d = .26$; positive monetary expectancies: $t = 8.61$, $p < .001$, $d = .43$; gambling-related erroneous thoughts: $t = 9.10$, $p < .001$, $d = .35$). Effects were observed in both sexes, with stronger baseline risk among boys. No iatrogenic effects reported
Huic et al. (2017)	$n = 190$ (M total = 16.9, range 14–17 years old)	32.4%	RCT, 2-arm (Training vs. No Training)	High-school students in Zagreb (Croatia), 1st–2nd year, general and vocational programs	*Who really wins?* – universal school-based gambling prevention program, 6 didactic units (90 min each) delivered during class time by trained facilitators. Methods: quizzes, worksheets, games, role playing, discussions, critical thinking activities, teamwork, creative techniques. Aimed at reducing cognitive distortions, increasing gambling knowledge, correcting misconceptions, and fostering protective factors (problem-solving, refusal skills, self-efficacy)	Significant increase in correct gambling knowledge (large effect, $d = 0.89$). Significant reductions in cognitive distortions (illusion of control: $d = 0.46$; probabilistic reasoning/superstition: $d = 0.28$). No significant short-term change in gambling frequency. Program effects equivalent for both sexes; results reported in aggregate	No significant short-term effects on problem-solving skills, resistance to peer pressure, or general self-efficacy. Also, effects consistent across gender, school type, gambling risk level, and academic achievement → supports universality of the program. No iatrogenic effects
Treatment							
Armstrong et al. (2020)	$N = 178$ ($M = 33.41$; SD = 9.6; range 19–73 years old)	42.7%	RCT, 2-arm (analytic prime vs. neutral prime)	Regular EGM gamblers recruited online; 84% at-risk or problem gamblers	Analytic vs. neutral word-substitution priming task (scrambled sentence task) to elicit analytical thinking, followed by gambling beliefs measures (GRCS, PGBS) and simulated slot	No effect of analytic prime condition on gambling behavior (bets, bet size, bet changes, persistence, theoretical losses). Analytical prime did not reduce gambling	- Gambling beliefs: analytic prime did not increase protective beliefs or reduce erroneous beliefs except for higher gambling expectancies (GRCS subscale)

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
				(based on PGSI)	machine play (Lucky Lolly Slots). Experimental task designed to test immediate effects on gambling beliefs and simulated behavior	involvement; increased gambling expectancies (GRCS subscale). Similar results regardless of condition. Men placed larger bets and had higher theoretical losses than women. Results were aggregated across sexes; gender included as covariate	- Erroneous gambling beliefs (GRCS) positively correlated with gambling intensity: bet changes, average bet size, and theoretical losses - Protective beliefs (PGBS) not associated with gambling behaviour - Younger participants endorsed more erroneous beliefs
Baño et al. (2021)	214 (M = 49.2, SD = 12.3)	100%	Single-arm study	Women diagnosed with GD (DSM-5 criteria) seeking treatment at a specialized hospital unit in Barcelona, Spain	Standardized manualized group CBT program: 16 weekly outpatient sessions (90 min) led by clinical psychologist + co-therapist. Focus on psychoeducation, contingency control, response prevention, cognitive restructuring, emotional regulation, and relapse prevention	- Dropout: 42.1% (n = 90; 95% CI: 35.4–48.7), mostly within the first 2 months; higher risk in women with lower GD severity and greater psychopathological distress - Relapse: 36.0% (n = 77; 95% CI: 29.6–42.4), distributed across treatment, especially in the first month; higher risk in women with lower education, divorced status, preference for non-strategic gambling, and concurrent substance use	- Dropout: higher for lower GD severity and higher psychopathological distress; more sessions attended were associated with older age, higher number of DSM-5 criteria met, and better psychopathological state - Relapse: higher risk for women with lower education, non-strategic gambling, divorced status, low social position, higher max bets, drug use, and absence of gambling debts
Boughton et al. (2016)	N = 25 (M = 56, SD = 9.7, range 28–70)	100%	Pilot single-arm study	Women identifying as having gambling concerns (91.7% scoring as problem gamblers, CPGI; 83% scored as disordered gamblers,	Clinician-facilitated group using teleconferencing/webinar (Adobe Connect) combined with a Tutorial Workbook (TW); 12 weekly sessions over 3 months, each 1.5–2 h. Sessions included mindfulness exercises, discussion of gambling triggers, goal progress review, homework feedback, module topic review, interactive group discussion, and psychoeducation on gambling-	67% aimed to stop gambling entirely; 89% reported decreased frequency of gambling; 44% decreased time spent gambling; 22% decreased money spent; 25% stopped certain forms of gambling; 56% reported reduced	PSS stress scores decreased significantly (pre 19.9 → post 14.5; t = 2.85, p =.02, d =.86); DASS-21 depression subscale decreased (t = 2.23, p =.05, d =.67); qualitative analysis indicated improvements in coping, self-esteem, mood, reduced isolation, improved relationships, increased hope and self-compassion. Participants valued peer

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
				DSM-5) recruited via internet and local newspapers in Ontario/North America	related and underlying psychological issues		support and harm reduction approach
Castrén et al. (2013)	$N = 471$ ($M = 34.5$, SD = 11.8).	31%	Single-arm study	Help-seeking gamblers in Finland, including 64% pathological gamblers, 14% problem gamblers, 10% at-risk	8-week Internet-based CBT program (Peli Poikki (PP)): 8 modules including psychoeducation, cognitive restructuring, recognition of high-risk situations, and relapse prevention; weekly homework; max 30 min/week telephone support; optional online discussion group	Gambling problems severity (NODS): Significant reduction in gambling problems from baseline to post-treatment (OR = 0.041, $p < 0.001$). Significant reductions from baseline to post-treatment in: NODS scores (OR = 0.041, $p < 0.001$), gambling urge (OR = 0.036, $p < 0.001$), impaired control (OR = 0.088, $p < 0.001$), weekly monetary losses (EUR 133.73 decrease, $t(153) = 4.08$, $p < 0.001$); no significant gender differences in gambling outcomes	Gambling urge and impaired control, gambling-related erroneous thoughts (ad hoc instruments), Alcohol Use Identification Test (AUDIT-C): significant improvements in all Decreases in alcohol consumption (females < males; $B = -1.32$, $p < 0.001$), depressive symptoms (MADRS-S; $B = -7.80$, $p < 0.001$), and gambling-related social consequences ($B = -0.25$, $p < 0.001$); early onset age associated with more erroneous gambling thoughts and higher alcohol use; qualitative feedback positive
Dowling et al. (2006)	$N = 19$ ($M = 44.8$, SD = 9.9, range 28–70 years old)	100%	RCT, 2-arms (treatment vs. waiting list control)	Female pathological gamblers from the general community, all with electronic gaming machine problems (Australia)	Manualized cognitive-behavioral therapy (CBT), consisting of 12 sessions (outpatient, free of charge) addressing financial limit setting, alternative activities, gambling-specific and general cognitive correction, problem solving, communication training, relapse prevention, imaginal desensitization	Significant improvements in gambling frequency, duration, money inserted, and expenditure from pre- to post-treatment ($p < 0.003$); gains maintained at 6-month follow-up ($p < 0.001$. By follow-up, 89% no longer met DSM-IV criteria for pathological gambling; 61% abstinent, 11% controlled gambling, 17% lapsed, 11% uncontrolled	Significant improvements in depression, state and trait anxiety, and self-esteem ($p < 0.02$)., maintained at follow-up ($p < 0.001$)

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
Dowling N., et al. (2007)	*N* = 56 Age: 43.6 years old (SD = 10.6) (control: 44.3 ± 11; individual: 43.5 ± 8; group: 42.6 ± 11.7)	100%	RCT, 3-arms (control, individual CBT, group CBT)	Female pathological gamblers, electronic gaming machines	12-session CBT program: financial limit setting, alternative activity planning, cognitive restructuring, problem solving, communication training, relapse prevention, imaginal desensitization; individual (12 × 1.5 h), group (12 × 2 h, 4–6 participants)	Gambling diagnostic criteria (DSM-IV) not met post-treatment: individual 92%, group 65%; at 6-month follow-up: individual 92%, group 60%. Dropout: individual 14%, group 0%. Gambling behavior (frequency, duration, money inserted, and expenditure) improved in both formats	Depression (BDI-II), anxiety (STAI), self-esteem (SEI): improved significantly ($p < .05$). Group CBT was less effective than individual in reducing depression and trait anxiety, and in improving self-esteem
Dowling, N. et al. (2009)	*N* = 41 *M* = 46.7 years old (SD = 10.3)	100%	Secondary analysis of RCT data (Dowling et al., 2006): single-arm outcomes for individual therapy participants analyzed by treatment goal	Participants with pathological gambling, assigned to Abstinence (*n* = 25) or Controlled Gambling (*n* = 16) based on treatment goal	12-session individual outpatient cognitive-behavioral program (1.5 h/session; total duration 12–52 weeks, *M* = 22, SD = 12, median = 16). Components: - Sessions 1–2: limit-setting and cash control + imaginal desensitization - Session 3: alternative leisure activities + imaginal desensitization - Sessions 4–6: cognitive therapy on gambling-related thoughts (randomness) + imaginal desensitization - Session 7: general problematic thoughts - Session 8: problem-solving training - Sessions 9–10: communication and assertiveness training - Sessions 11–12: relapse prevention All participants received the same program, but participants chose their treatment goal. Duration did not differ between groups	Criteria for pathological gambling (DSM-IV): - Intention-to-Treat: Abstinence 64%, Controlled Gambling 63% at end of treatment; 64% vs. 56% at 6-month follow-up - Treatment Completer: Abstinence 84%, Controlled Gambling 83% at end of treatment; 89% vs. 82% at 6-month follow-up Gambling frequency and expenditure (Gambling diaries): significant reduction ($p < 0.05$) from pre-treatment to treatment and pre-treatment to 6-month follow-up in both groups. No significant change from treatment to follow-up	Significant improvements in depression (BDI-II) and anxiety (STAI) ($p < 0.05$) from pre-treatment to treatment and pre-treatment to 6-month follow-up. No significant changes were observed from treatment to follow-up nor between groups

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
Granero et al. (2022)	$N = 318$ ($M = 47.3$, Sd = 12.3, range 21–77 years old)	100%	Single-arm study	Women seeking treatment for GD ($n = 221$) at a clinical hospital in Spain	12-week individual outpatient CBT program (45–90 min per session) including cognitive restructuring, problem-solving, stimulus control, self-monitoring, and psychoeducation	The 12-week individual CBT program represents an effective base intervention, but requires flexibility according to latent risk class. Four latent classes identified based on CBT outcomes: LT1 ("good progression to recovery") – lowest relapse/dropout; LT3 ("bad progression to dropout") – highest dropout; LT4 ("bad progression to relapse") – highest relapse. LT2 – intermediate outcomes. For dropouts: LT1 vs LT3: $\chi^2 = 3.99$, $p = 0.046$; LT1 vs LT4: $\chi^2 = 5.48$, $p = 0.019$ LT1 vs LT2/LT3/LT4 for relapses: $p < 0.002$. Effect size: Largest for LT1 vs LT4 (Cohen's $d > 0.80$)	LT1 had healthiest baseline psychological profile and functional personality traits (lower psychopathology, lower harm avoidance, and higher self-directedness, cooperativeness, and persistence). LT3/LT4 clustered younger women, with the worst psychopathology, dysfunctional personality traits, and higher likelihood of autolysis. T2 included older women, with later onset and fewer gambling-related debts, but with specific motivations (loneliness, grief, boredom in retirement). Tailoring CBT to sociodemographic and psychological profiles may improve retention and treatment outcomes in women
Kim et al. (2016)	$N = 150$ ($M = 39.65$, SD = 13.59)	57.3%	Secondary analysis of RCT data: single-arm outcomes from standard helpline care condition	First-time callers to New Zealand national gambling helpline who perceived themselves as having a gambling problem	Standard helpline care (brief support, problem identification, treatment referrals, mailed information packs)	Significant reduction in problem gambling severity (PGSI): days gambled, and money lost from baseline to 3 months. Improvements maintained at 6 and 12 months (p <.001). Increase in perceived control over gambling. No gender differences in outcomes	Significant improvement in psychological distress (K-10) and quality of life (QoL-8) for both genders. Women had higher baseline distress ($p = .019$) and lower QoL ($p = .014$) but achieved equivalent improvements; no gender differences in depressive disorders, alcohol use, or smoking; men had slightly higher drug abuse at baseline ($p = .043$)
Lara-Huallipe	$N = 163$ ($M = 47.8$,	100%	Single-arm study	Consecutive female patients attending a	Individual cognitive-behavioral therapy (CBT), 16 weekly outpatient sessions (90 min each).	Three clusters identified: - Cluster 1 (41.1%): medium GD severity, best baseline	Profiles differentiated by personality traits (self-directedness, harm avoidance)

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
et al. (2022)	SD = 11.3, range 20–73)			specialized GD Unit (Hospital Universitari de Bellvitge, Spain), diagnosed with GD (DSM-5)	Components: psychoeducation on GD and vulnerability factors; cognitive restructuring; emotion regulation and relaxation training; problem-solving; stimulus control strategies (trigger avoidance, financial planning, self-exclusion); daily monitoring with column sheets; relapse prevention	psychological functioning, highest self-directedness; 0% dropout, 14.9% relapse - Cluster 2 (38.7%): lowest GD severity, medium psychopathology, high dropout risk (100% dropout, 19% relapse) - Cluster 3 (20.2%): highest GD severity, worst psychopathological state, lowest self-directedness, highest harm avoidance; 21.2% dropout, 97% relapse	and baseline psychopathology (SCL-90-R). Better psychological functioning and higher self-directedness associated with lower dropout/relapse risk. Person-centered, tailored interventions suggested for women with high distress and low self-directedness
Larimer et al. (2012)	*N* = 147 (mean = 21.2, range 19–25, SD = 1.37)	34.7%	RCT (3-arms: PFI, CBI, AOC)	At-risk/probable pathological gamblers, US college students	- PFI: Individual, single session (60–90 min), motivational interviewing style; personalized feedback on gambling behavior, norms, consequences, illusions of control, and risk-reduction tips - CBI: Group, 4–6 sessions (1 h each); functional analysis, cognitive restructuring (illusions of control), coping skills, assertiveness, relapse prevention; homework and gambling diaries; encouraged abstinence during treatment - AOC: Assessment only control	Both interventions reduced gambling consequences (GPI) [PFI d = 0.48; CBI d = 0.39] and DSM-IV criteria [PFI d = 0.60; CBI d = 0.48] at 6-month follow-up. Although men reported higher baseline gambling frequency and expenditure, sex (and race) did not influence treatment outcomes; results are reported in aggregate	CBI vs control: Reductions in illusions of control (BACS): d = 0.43; PFI vs control: reductions in perceived gambling frequency norms (GQPN): d = 0.68 (results aggregated across sex)
Toneatto and Wang (2009)	*N* = 60 (M = 45.37 years old, SD = 12.72)	26.7%	Single-arm study	Treatment-seeking outpatient problem gamblers in Toronto, Canada	~7 sessions of individual CBT (short-term, tailored to gambling reduction and coping skills), with the number of sessions determined consensually between participant and therapist	At 6-month follow-up: men showed significantly greater improvement in gambling severity (DSM-IV symptom reduction: 4.18, SD = 3.33 vs. 1.33, SD = 2.93 in women; p <.05) and higher abstinence rates (38.2% men vs. 8.3% women). Women continued to	Women showed higher anxiety at baseline (BSI-18 anxiety: M = 2.83, SD = 1.29 vs. M = 2.14, SD = 0.93 in men; p < .05) and continued to report greater anxiety and subjective gambling severity at follow-up. Women also presented more psychiatric

(continued)

Table 1. Continued

Authors (year)	*N* (mean age, range/SD)	Gender (% females)	Study design	Population	Intervention	Results	
						Primary outcome: gambling	Secondary outcomes
						meet DSM-IV criteria at higher rates (58.3%. 7/12 within sex) compared to men (17.6%, 6/34 within sex)	comorbidity (e.g., past depression, current psychiatric treatment) and were more likely to use gambling to cope with negative affect. Treatment process ratings differed: men evaluated CBT components as more helpful, whereas women perceived key gambling-specific strategies (identifying high-risk situations, addressing gambling cognitions, developing coping responses) as less helpful
Valenciano-Mendoza et al. (2021)	*N* = 1,112 (mean age not specified; range not reported)	19%	Single-arm study	Patients with GD (DSM-5), attending a Gambling Disorder Unit in Barcelona, Spain	Participants received a protocolized cognitive-behavioral therapy (CBT) outpatient program consisting of 16 weekly group sessions of 90 min each. Key components included psychoeducation on GD, stimulus control, money management, reinforcement and self-reinforcement, response prevention, cognitive restructuring (focused on illusions of control), emotional regulation training, and relapse prevention techniques. Seven sessions included participation of a close relative or significant other as a co-therapist to provide support, guidance, and psychoeducation. CBT was delivered by an experienced clinical psychologist with a trained co-therapist	Women showed faster occurrence of relapses and dropouts compared to men, independent of gambling preference or suicidal behavior. Suicidal ideation associated with faster relapses and dropouts in women	Higher psychopathology scores (SCL-90R) were associated with relapses. Dropout was related to higher novelty seeking and lower self-directedness and cooperativeness (TCI-R). These associations applied to the full sample, not only women

Note: BART = Balloon Analogue Risk Task, a computer-based measure of behavioral risk taking; PAC = Pick-a-Card task, a behavioral risk-taking assessment; PNF = Personalized Normative Feedback; RCT = Randomized controlled trial; DSM-5 = Diagnostic and Statistical Manual of Mental Disorders (5th ed.); GD = Gambling disorder; EGM = Electronic gaming machine; CBT/CBI = Cognitive behavioral therapy/ Cognitive behavioral intervention; SD = Standard deviation.

Smith, & Thomas, 2006; Dowling, Smith, & Thomas, 2007; Dowling, Smith, & Thomas, 2009) and New Zealand (n = 1, 5.6%; Kim, Hodgins, Bellringer, & Abbott, 2016)]; two (11.1%) in the United States (Celio & Lisman, 2014; Larimer et al., 2012); and two (11.1%) in Canada (Boughton, Jindani, & Turner 2016; Toneatto & Wang, 2009).

Sample sizes varied widely across studies, ranging from 19 to 2,372 participants. Large samples were reported in Chóliz et al. (2022; n = 2,372), Donati et al. (2022; n = 1,894), and Valenciano-Mendoza et al. (2021; n = 1,112), while smaller samples were seen in Dowling et al. (2006; n = 19) and Boughton et al. (2016; n = 25).

Regarding study aims, five studies (27.8%) focused on gambling prevention (Celio & Lisman, 2014; Chóliz et al., 2022; Dodig Hundric et al., 2021; Donati et al., 2022; Huic et al., 2017) and thirteen on gambling treatment. Among prevention studies, two were randomized RCTs and three employed a single-arm design. Among treatment studies, four were RCTs, seven were single-arm studies, and two reported single-arm outcomes derived from RCT data.

Gambling prevention studies

Of the five prevention studies included in the review, most (80%, n = 4), were universal programs targeting adolescents in secondary schools (Chóliz et al., 2022; Donati et al., 2022; Huic et al., 2017; Dodig Hundric et al., 2021), while Celio and Lisman (2014) tested a selective, computerized intervention among college students who had gambled at least once in the past month. None of the programs were specifically designed for women, nor did they explicitly address sex-specific risk factors in their content.

In terms of content, prevention programs consistently included psychoeducation on gambling risks, gambling knowledge, probabilistic reasoning and correction of cognitive distortions, with some also incorporating socio-emotional skills such as problem-solving, coping and refusal skills (Huic et al., 2017; Dodig Hundric et al., 2021). The format was predominantly group-based in classroom settings (80%), with short durations ranging from two sessions (Chóliz et al., 2022; Donati et al., 2022; Celio & Lisman, 2014) to nine weekly workshops (Dodig Hundric et al., 2021). Only Celio and Lisman (2014) applied a personalized normative feedback intervention delivered via computer. Two studies (Huic et al., 2017; Dodig Hundric et al., 2021) evaluated versions of the same program, *Who Really Wins?* with Dodig Hundric et al. applying a modified structure (nine 45-min sessions versus six 90-min sessions in the pilot) to facilitate school-based implementation.

Prevention programs generally produced positive effects on gambling-related outcomes. Some studies reported results specifically for girls (Chóliz et al., 2022; Dodig Hundric et al., 2021; Donati et al., 2022), whereas others presented aggregated data for both sexes (Celio & Lisman, 2014; Huic et al., 2017), with no significant sex differences observed in the latter. Across studies, reductions in gambling frequency, risk-taking, and at-risk/problem gambling prevalence were consistently observed (Celio & Lisman, 2014; Chóliz et al., 2022; Donati et al., 2022), and girls benefited despite typically exhibiting lower baseline risk. Interventions also improved gambling knowledge and reduced cognitive distortions, including perceived norms (Celio & Lisman, 2014), erroneous beliefs, illusion of control, probabilistic reasoning, and understanding of random events (Chóliz et al., 2022; Dodig Hundric et al., 2021; Donati et al., 2022; Huic et al., 2017). Effects on socio-emotional or affective factors were less consistent: some reductions in superstitious thinking and positive monetary expectancies were reported (Donati et al., 2022), whereas no significant improvements in problem-solving, coping with peer pressure, or general self-efficacy were observed (Dodig Hundric et al., 2021; Huic et al., 2017). Importantly, no study reported iatrogenic effects, indicating that these prevention programs were safe. Only one study (Donati et al., 2022) conducted a follow-up assessment, which showed maintained benefits at three to four months, although no longer-term evaluations were available. Overall, girls experienced meaningful improvements in gambling behavior and related cognitive variables comparable to boys.

Gambling treatment studies

Of the treatment studies included, most focused on evaluating the efficacy of standardized interventions, while a subset explored which patient profiles benefited most using person-centered methods (latent class/cluster analyses) (Baño et al., 2021; Granero et al., 2022; Lara-Huallipe et al., 2022). Samples varied: several studies recruited women-only clinical cohorts (Baño et al., 2021; Boughton et al., 2016; Dowling et al., 2006, 2007, 2009; Granero et al., 2022; Lara-Huallipe et al., 2022), while others included mixed-sex samples and explored sex differences in treatment outcomes (Armstrong et al., 2020; Castrén et al., 2013; Kim et al., 2016; Larimer et al., 2012; Toneatto & Wang, 2009; Valenciano-Mendoza et al., 2021). In addition to conventional clinical trials, the review also includes brief/experimental interventions such as laboratory experimental work testing cognitive primes (Armstrong et al., 2020).

Most interventions were based on manualized cognitive-behavioral therapy (CBT), generally delivered in outpatient settings over 12–16 weekly sessions, either individually or in groups (Baño et al., 2021; Dowling et al., 2006, 2007; Granero et al., 2022; Lara-Huallipe et al., 2022; Valenciano-Mendoza et al., 2021). Core CBT components included psychoeducation, cognitive restructuring (targeting gambling cognitions/illusions of control), stimulus control and financial management, emotional regulation, problem-solving, communication skills, and relapse prevention. Several programs incorporated relatives or co-therapists to reinforce support (Baño et al., 2021; Valenciano-Mendoza et al., 2021). Alternative delivery formats were also represented: an 8-week internet-CBT program with brief telephone support (Castrén et al., 2013), brief single-session motivational/feedback interventions for students (Larimer et al., 2012), teleconference-facilitated group sessions tailored to women (Boughton et al., 2016), and short individualized CBT packages (Toneatto &

Wang, 2009). Armstrong et al. (2020) differs methodologically from the therapeutic trials: it was an experimental RCT testing a single-session analytic-thinking prime (scrambled-sentence task) followed by gambling belief measures and simulated slot-machine play — i.e., a mechanistic laboratory manipulation rather than a clinical treatment course.

Overall effects were favourable but heterogeneous. Most clinical CBT programs reported significant pre-to-post reductions in gambling frequency, expenditure, problem severity and DSM/DSM-derived diagnostic criteria, with many studies documenting maintenance of gains at 6–12 month follow-up (Castrén et al., 2013; Dowling et al., 2006, 2007, 2009; Kim et al., 2016; Larimer et al., 2012). Secondary outcomes—depression, anxiety, stress, self-esteem and quality of life—also improved in multiple trials (Dowling et al., 2006, 2007, 2009; Boughton et al., 2016; Castrén et al., 2013). However, dropout and relapse rates remained substantial in several cohorts, particularly among women with higher baseline psychopathology, lower education or maladaptive personality profiles (Baño et al., 2021; Valenciano-Mendoza et al., 2021). Person-centred analyses (Baño et al., 2021; Granero et al., 2022; Lara-Huallipe et al., 2022) identified latent classes with markedly different trajectories (e.g., "good progression" vs. "high dropout" or "high relapse"), underscoring the value of tailoring interventions to sociodemographic, clinical and personality profiles. Importantly, the experimental trial by Armstrong et al. (2020) found no beneficial effect of an analytic-thinking prime on simulated gambling behaviour or on protective beliefs; instead it produced increased gambling expectancies on one Gambling Related Cognitions Scale (GRCS) subscale. Across the treatment literature included here, no studies reported iatrogenic effects attributable to the interventions.

Finally, some studies also reported differences in program effects depending on sex or intervention format. Toneatto and Wang (2009) found greater changes among men compared to women, and Valenciano-Mendoza et al. (2021) observed faster relapse and dropout rates in women. In Dowling et al. (2007), individual CBT yielded better outcomes than group CBT among women, while Dowling et al. (2009) suggested slightly greater benefits when individual CBT targeted abstinence rather than controlled gambling. Finally, Larimer et al. (2012) showed that a brief personalized feedback intervention (PFI, one session) achieved effects comparable, and in some cases larger (reduced gambling consequences [PFI $d = 0.48$; CBT $d = 0.39$] and DSM-IV criteria [PFI $d = 0.60$; CBT $d = 0.48$]), than those obtained with a multi-session group CBT (4–6 sessions).

Study quality

The overall quality of the 18 included studies was rated as fair. Among the controlled studies, only one was classified as good, while the remaining studies—including all single-arm trials—were rated as fair. Among the controlled trials, although most were described as randomized, details on randomization procedures and allocation concealment were frequently unreported, raising concerns about selection bias. Blinding of participants, providers, and outcome assessors was rarely implemented, increasing the risk of performance and detection bias. Furthermore, many studies did not report power calculations to justify sample size, and information on co-interventions was often limited. Single-arm studies were similarly affected by methodological limitations, the main sources of bias were the lack of repeated outcome measurements before and after the intervention, and insufficient reporting on the enrollment of eligible participants and the blinding of outcome assessors. Overall, these factors indicate that the risk of bias in the included studies was primarily related to deficiencies in reporting and methodological transparency.

DISCUSSION

The identification of effective prevention and treatment interventions for GD in women is essential, given their increasing vulnerability and the gender-specific risk factors that often differentiate their gambling trajectories from men. To our knowledge, this is the first systematic review on gambling to synthesize the evidence regarding prevention and intervention programs specifically targeting women. The primary aim was to evaluate the effectiveness of these programs and their impact on gambling behaviors, associated cognitive variables, and psychological outcomes, while also identifying challenges in treatment access and adherence.

Overall, findings from the included studies suggest that both prevention and treatment programs are generally effective in reducing gambling behaviors and improving associated cognitive outcomes among women. However, their efficacy varies depending on program characteristics, delivery format (group vs. individual), and participant profiles (e.g., age, psychological distress, personality traits). Importantly, this review also highlights that research specifically targeting women remains scarce—particularly in the field of prevention, where most interventions have been designed for general populations rather than tailored to female-specific risk factors. Moreover, within the studies included in this review, no publications from the past two to three years were identified, reflecting a concerning stagnation in research on gender-responsive gambling interventions. This lack of continuity appears to follow a cyclical pattern, with brief periods of increased publication activity followed by several years with no output, suggesting fluctuating research interest or limited sustained funding in this area. This gap underscores the need to revitalize the field through updated methodologies and conceptual frameworks that move beyond harm-reduction models and situate GD within a broader public health perspective, recognizing the roles of societal factors, the gambling industry, marketing, and policy in shaping risk, rather than focusing solely on individual responsibility.

Regarding prevention, most studies evaluated a universal prevention strategy (80%, $n = 4$), with only one adopting a selective approach. None targeted women exclusively, which

is understandable given the predominance of universal interventions, yet the scarcity of selective or indicated programs is notable given the focus on this population in the present systematic review. Three studies (Chóliz et al., 2022; Dodig Hundric et al., 2021; Donati et al., 2022) reported sex-disaggregated outcomes, whereas two (Celio & Lisman, 2014; Huic et al., 2017) presented aggregated findings after confirming no significant gender differences, potentially limiting the results. Overall, programs produced short-term improvements in knowledge, gambling frequency, and cognitive distortions, while effects on socioemotional variables were inconsistent. *Who Really Wins?* program (Dodig Hundric et al., 2021; Huic et al., 2017) incorporated socioemotional skills, problem-solving, and peer pressure resistance, without achieving improvements on socioemotional variables; in contrast, PRIZE (Donati et al., 2022) reduced affective risk factors despite not explicitly targeting socioemotional content, possibly due to a longer follow-up (3–4 months). These findings suggest that socioemotional changes may require more time to consolidate, highlighting the need for medium- and long-term follow-up assessments, conducted only in Donati et al. (2022).

Regarding treatment, a greater proportion of studies focused exclusively on women (53%, $n = 7$). Notably, Spanish research evaluated both the efficacy of CBT programs and patient profiles most likely to benefit, highlighting the need for tailored interventions (Baño et al., 2021; Granero et al., 2022; Lara-Huallipe et al., 2022; Valenciano-Mendoza et al., 2021). In this regard, Toneatto and Wang (2009) reported that men experienced greater improvements than women following individual CBT, whereas Valenciano-Mendoza et al. (2021) found that, after group CBT, women relapsed and dropped out more quickly than men. These results suggest that standard CBT protocols may not fully meet women's treatment needs, supporting the value of tailored approaches. Similarly, Larimer et al. (2012) showed that a brief personalized feedback intervention produced comparable or even superior effects to multi-session CBT, raising questions about the general applicability of CBT for gambling and its cost-effectiveness, which none of the included studies systematically evaluated. Additionally, Dowling et al. (2007), in a women-only sample, found that individual CBT yielded better outcomes than group CBT, a difference potentially explained by the stigma and lack of social support frequently reported by women, which could hinder women's engagement and openness in group settings.

Finally, a recurrent limitation in the studies is the predominance of CBT-based programs, with limited diversity in approaches. Although more novel third-wave interventions, particularly mindfulness, have shown potential in gambling ($g = 0.68$) (Maynard, Wilson, Labuzienski, & Whiting, 2018) and in other outcomes highly relevant to gambling in women—adults: reduction in compulsive Internet use ($d = 0.22$) (Quinones & Griffiths, 2019), anxiety ($g = 0.22$), depression ($g = 0.29$), stress ($g = 0.55$), and well-being ($g = 0.23$) (Spijkerman, Pots, & Bohlmeijer, 2016); adolescents: reduction in anxiety ($g = 0.96$ [0.55–1.37]) and depression ($g = 0.42$ [0.22–0.62]) (Kallapiran, Koo, Kirubakaran, & Hancock, 2015)—to the best of our knowledge, no studies have applied these interventions with a gender-sensitive perspective or systematically disaggregated outcomes by sex. This underscores the need for gambling prevention and treatment strategies that explicitly address women-specific risk factors, such as emotional distress, loneliness, or exposure to violence (Hing et al., 2016a; Macía et al., 2023; Merkouris et al., 2016), and that integrate broader socioemotional components along with more diverse and innovative therapeutic approaches. In this context, online interventions may represent an effective solution to reduce access barriers and increase treatment adherence (Roberts, Champion, & Irving, 2017). This format enables support in safe spaces, particularly for women who may not verbalize their gambling problems due to stigma or domestic role overload.

Recommendations

Based on the available evidence, several recommendations can be made for prevention and treatment of GD in women. First, prevention efforts should not only rely on universal programs but also incorporate selective approaches that explicitly consider women's specific vulnerabilities (e.g., gambling as a coping strategy for emotional distress, exposure to violence, or caregiving burden). Integrating gender-sensitive content in prevention curricula may reduce the inconsistency of effects on socio-emotional outcomes. Second, treatment programs should be adapted to women's profiles and psychological needs, moving beyond standard CBT to include modules on emotional regulation, stigma reduction, and social support enhancement. Third, given the promising results of brief and individualized interventions, stepped-care models combining low-intensity interventions (e.g., single-session feedback, online modules) with more intensive individualized CBT could enhance accessibility, adherence, and cost-effectiveness. Finally, interventions should systematically report sex-disaggregated results to allow stronger conclusions regarding gender differences in effectiveness.

Strengths and limitations

This systematic review provides a comprehensive synthesis of the current evidence on gambling prevention and intervention programs for women. Its strengths include the explicit focus on female participants, the inclusion of both prevention and treatment studies, and the consideration of a wide range of outcomes, from gambling behaviors to cognitive and psychological variables. Moreover, by integrating findings from diverse designs (RCTs, quasi-experimental, and pre–post studies), the review offers a broad overview of the field.

However, certain limitations should be acknowledged. The search was restricted to publications in English and Spanish, which may have led to the exclusion of relevant studies in other languages. Furthermore, the conclusions are dependent on the reporting quality of primary studies, and the overall scarcity of research specifically targeting women limited the scope of the synthesis.

Finally, limitations related to the included studies must also be considered. The available evidence showed substantial methodological heterogeneity, particularly in outcome measures and intervention formats, which precluded meta-analytic synthesis. Many studies relied on self-reported data, increasing susceptibility to bias, and follow-up periods were often limited, especially in prevention research. In addition, most interventions were CBT-based, reflecting limited diversity in therapeutic approaches, and relatively few studies implemented gender-sensitive designs or reported sex-disaggregated outcomes.

Future research

Future research should address several key gaps. First, more selective and indicated prevention programs tailored to women and adolescent girls are needed, particularly those targeting socio-emotional vulnerabilities and affective risk factors. Second, treatment studies should expand beyond traditional CBT and evaluate the effectiveness of third-wave approaches (e.g., mindfulness, acceptance and commitment therapy), while systematically incorporating gender-sensitive components. Third, person-centered analyses, as developed in recent Spanish studies, should be further explored to identify subgroups of women who benefit most from particular interventions. Fourth, cost-effectiveness analyses are urgently needed to guide public policy and resource allocation, especially for brief or online interventions that may reduce barriers to access. Finally, all future trials should report results separately for men and women, or include exclusively female samples, to strengthen the evidence base for gender-responsive prevention and treatment.

CONCLUSIONS

This systematic review demonstrates that both prevention and treatment programs can be effective in reducing gambling behaviors and improving cognitive outcomes among women, although their impact varies depending on program type, format, and participant characteristics. Prevention studies remain scarce and largely universal, with limited evidence on selective strategies that address women's specific risk factors. Treatment studies, particularly those conducted in Spain, provide valuable insights into tailoring interventions to women's psychological and social profiles, yet challenges such as higher relapse and dropout rates highlight the need for more comprehensive, personalized approaches. Overall, the findings underscore the importance of developing gender-sensitive prevention and treatment strategies, diversifying therapeutical approaches beyond CBT, and conducting long-term and cost-effectiveness evaluations. Advancing research in this direction will not only improve clinical outcomes for women with GD but also contribute to more inclusive and effective public health policies.

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Appendix

Table A1. Search strategy

Database	Search string	Results (original search: 17-04-2024)	Results (repeated search: 11-09-2025)	Results (repeated search: 17-02-2026)
PubMed	((((“women”[Title/Abstract] OR “woman”[Title/Abstract] OR “female*”[Title/Abstract] OR “girl*”[Title/Abstract]) AND (“intervent*”[Title/Abstract] OR “prevent*”[Title/Abstract] OR “treat*”[Title/Abstract]) AND (“gambl*”[Title/Abstract] OR “pathological gambling”[Title/Abstract] OR “problem gambling”[Title/Abstract])) AND (humans [Filter]) AND (english[Filter] OR spanish [Filter]))	**305**	**15**	**16**
PsycINFO (via ProQuest)	(abstract(woman OR women OR female* OR girl*) AND abstract(interven* OR prevent* OR treat*) AND title(gambl* OR “pathological gambling” OR “problem gambling”)) AND LA(English OR Spanish) AND PEER(yes)	**582**	**80**	**30**
Web of Science	(AB=(woman OR women OR female* OR girl*) AND AB=(interven* OR prevent* OR treat*) AND TI=(gambl* OR “pathological gambling” OR “problem gambling”)) AND LA=(ENGLISH OR SPANISH) NOT DT=(DISSERTATION THESIS OR CASE REPORT OR MEETING OR PATENT OR BOOK OR NEWS)	**596**	**74**	**19**
TOTAL		**1,483**	**169**	**65**
TOTAL			**1,717**	

Table A2. Risk of bias for controlled intervention studies based on the Heart, Lung, and Blood Institute assessment tool

Study	Response														
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	QA
Huic et al. (2017)	Y	NR	CD	N	N	Y	NR	NR	Y	NR	Y	N	Y	NR	Fair
Celio and Lisman (2014)	Y	NR	NR	N	NR	Y	Y	Y	NR	NR	Y	N	Y	NR	Fair
Armstrong et al. (2020)	Y	NR	CD	N	NR	Y	Y	NR	Y	NR	Y	N	Y	NR	Fair
Dowling et al. (2006)	Y	NR	NR	N	NR	Y	Y	NR	Y	Y	Y	N	Y	N	Fair
Dowling et al. (2007)	Y	NR	NR	N	NR	Y	Y	Y	Y	Y	Y	N	Y	Y	Good
Larimer et al. (2012)	Y	NR	NR	N	NR	Y	Y	Y	N	NR	Y	N	Y	Y	Fair
Dowling et al. (2009)	Y	NR	NR	N	NR	Y	N	Y	CD	Y	Y	N	Y	Y	Fair

Note: CD, cannot determine; NA, not applicable; NR, not reported.
The tool and its items can be found here: https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools.

Table A3. Risk of bias for single-arm studies based on the Heart, Lung, and Blood Institute assessment tool

Study	Response												
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	QA
Donati et al. (2022)	Y	Y	Y	NR	NR	Y	Y	NR	N	Y	N	Y	Fair
Kim et al. (2016)	Y	Y	Y	NR	CD	Y	Y	NR	N	Y	N	NA	Fair
Castrén et al. (2013)	Y	Y	Y	NR	NR	Y	Y	NR	N	Y	N	NA	Fair
Toneatto and Wang (2009)	Y	Y	CD	NR	N	Y	Y	NR	Y	Y	N	NA	Fair
Chóliz et al. (2022)	Y	Y	CD	NR	Y	Y	Y	NR	NR	Y	N	NA	Fair
Granero et al. (2022)	Y	Y	Y	NR	NR	Y	Y	NR	NR	Y	N	NA	Fair
Boughton et al. (2016)	Y	Y	N	NR	N	Y	Y	NR	N	Y	N	NR	Poor
Baño et al. (2021)	Y	N	Y	NR	Y	Y	Y	NR	NR	Y	N	NR	Fair
Valenciano-Mendoza et al. (2021)	Y	Y	Y	NR	Y	Y	Y	NR	NR	Y	N	NR	Fair
Lara-Huallipe et al. (2022)	Y	N	Y	NR	Y	Y	Y	NR	NR	Y	N	NA	Fair
Dodig Hundric et al. (2021)	Y	N	CD	CD	NR	Y	Y	NR	NR	Y	N	NA	Poor

Note: CD, cannot determine; NA, not applicable; NR, not reported.
The tool and its items can be found here: https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools.