Absolute and Relative Responses of Pharmacological Treatments for Gambling Disorder: A Systematic Review and Meta-Analysis

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Summary Gambling disorder is associated with significant psychological, financial, and interpersonal harms, yet no medications have received U.S. Food and Drug Administration approval for its treatment. Existing pharmacotherapy studies have primarily reported standardized effect sizes, which may be difficult to interpret clinically. This presentation reviews a meta-analysis examining clinically meaningful absolute and relative response outcomes associated with pharmacological treatments for gambling disorder. A systematic review identified 12 randomized controlled trials (N = 606) comparing pharmacological interventions with placebo or treatment-as-usual control conditions. Random-effects meta-analyses evaluated absolute response rates, defined as ≥50% reduction in gambling disorder severity, and relative response ratios comparing pharmacotherapy with placebo. Primary analyses used an intent-to-treat framework, with additional sensitivity analyses examining alternative assumptions regarding participant attrition. Results indicated modest absolute response rates for pharmacotherapy (42%) relative to placebo (32%). Relative response analyses did not demonstrate statistically significant superiority of pharmacotherapy under primary intent-to-treat assumptions, although completer-only analyses favored pharmacotherapy. Findings also highlighted substantial placebo response across trials and variability in outcomes depending on attrition handling methods. This presentation will discuss the clinical and methodological implications of response-based outcome metrics for gambling disorder research and treatment planning. Emphasis will be placed on how clinically interpretable response outcomes may improve evaluation of pharmacological interventions and inform future research, evidence synthesis, and treatment guideline development.

The questions following the above will ask you to breakdown your summary.

Background Gambling, or risking something of monetary value on an event with an uncertain outcome, has expanded rapidly worldwide and become a common recreational activity among adults. As gambling opportunities continue to increase through legalization, online platforms, and

evolving digital technologies, concerns regarding gambling-related harm have also grown. Gambling-related harms include financial strain, relationship conflict, psychological distress, impaired occupational functioning, and reduced quality of life. Globally, approximately 1.5% of adults experience gambling disorder, highlighting the need for effective and accessible treatments.

Despite the growing public health burden associated with gambling disorder, the U.S. Food and Drug Administration (FDA) has not approved any medications for its treatment. Nevertheless, several pharmacological approaches—including opioid antagonists, selective serotonin reuptake inhibitors, mood stabilizers, and glutamatergic agents—have been evaluated in randomized controlled trials with mixed but promising findings. Existing meta-analyses suggest that some pharmacological treatments may reduce gambling behavior and gambling disorder severity relative to placebo or control conditions. However, treatment effects are typically reported using standardized mean differences and other statistical effect size metrics that may be difficult for clinicians, policymakers, and patients to interpret meaningfully in clinical practice.

Absolute treatment outcomes, defined as the percentage of individuals who achieve clinically meaningful improvement (e.g., ≥50% reduction in gambling disorder severity or gambling behavior), may provide a more interpretable framework for evaluating treatment effectiveness. Relative response outcomes further contextualize the likelihood of improvement compared with placebo or control conditions. While these metrics are rarely examined in gambling disorder pharmacotherapy research, they may better inform clinical decision-making, treatment planning, and policy discussions regarding the role of medication-based interventions for gambling disorder.

Educational Learning Objectives

Learning Objective 1 Describe the current evidence base for pharmacological treatments for gambling disorder.

Learning Objective 2 Interpret absolute and relative response outcomes in gambling disorder treatment research.

Learning Objective 3 Evaluate the clinical significance of pharmacotherapy outcomes relative to placebo response rates.

Methods A systematic literature search was conducted through January 2026. Included studies were randomized controlled trials comparing any pharmacological treatment for gambling disorder with placebo control conditions among adults with gambling disorder. Random-effects meta-analyses were conducted with absolute responses, defined as ≥50% reduction in gambling disorder severity from baseline to post-treatment, as the primary outcome. Relative responses (RR) were calculated to compare responses between pharmacological treatment and placebo conditions. Meta-analyses were conducted using an intent-to-treat approach where participants who were randomized but not included in the analyses in the original studies were classified as non-responders. Sensitivity analyses were conducted classifying all dropouts were responders and using only participants who completed the original study. Subgroup analyses compared RRs between studies funded by the pharmaceutical industry versus not.

Results Across 12 included trials (606 participants), the pooled absolute response for pharmacological treatments was 0.42 (95% CI: 0.33-0.51) for gambling disorder severity. By contrast, the pooled response for placebo conditions was 0.32 (95% CI: 0.23, 0.43). Relative responses showed no significant difference between pharmacological treatments and placebo conditions (RR = 1.35, 95% CI: 0.99-1.85, p = 0.06). Sensitivity analyses demonstrated variability in response estimates depending on assumptions regarding participant attrition. In completer-only analyses, the pooled absolute response rate was 0.48 (95% CI: 0.36–0.61) for pharmacotherapy and 0.37 (95% CI: 0.28–0.48) for placebo, with a significant relative response favoring pharmacotherapy (RR = 1.40, 95% CI: 1.11–1.76, p = 0.01). Subgroup analyses indicated no significant differences in RRs between industry funded and non-industry funded studies

Conclusion Pharmacological treatments for gambling disorder were associated with modest absolute response rates; however, relative response analyses did not demonstrate statistically significant superiority over placebo under the primary intent-to-treat assumptions. Sensitivity analyses suggested that findings may vary depending on how participant attrition is handled, with completer-only analyses favoring pharmacotherapy but more conservative intent-to-treat approaches showing no significant advantage over placebo. These findings highlight both the potential clinical benefit of pharmacotherapy for some individuals and the substantial placebo response observed across trials. Additional large-scale, methodologically rigorous studies are needed to clarify the efficacy of specific medication classes and identify factors associated with treatment response in gambling disorder.

Scientific Significance This study extends the gambling disorder treatment literature by applying clinically interpretable absolute and relative response metrics to pharmacotherapy trials. Findings highlight that pharmacological treatments are associated with modest rates of clinical improvement, while also demonstrating substantial placebo response across studies. The discrepancy between completer-only and intent-to-treat findings further underscores the importance of methodological decisions regarding attrition handling in gambling disorder trials. By emphasizing response-based outcomes rather than standardized effect sizes alone, this study provides a clinically relevant framework for interpreting treatment efficacy that may inform future trial design, evidence synthesis, and treatment guideline development for gambling disorder.

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