



COMPREHENSIVE REVIEW

# Cognitive–behavioral therapy for Internet gaming disorder: A systematic review and meta-analysis

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Abstract

## Objective

Although there is sufficient research and clinical evidence to support the inclusion of gaming disorder in the latest revision of the International Classification of Diseases, relatively little is known about the effectiveness of first-line psychological treatment for gaming disorder or internet gaming disorder (IGD) as it is listed in the Diagnostic and Statistical Manual. This systematic review employed meta-analytic techniques to determine the effectiveness of cognitive–behavioural therapy (CBT) for IGD on four key outcomes: IGD symptoms, anxiety, depression, and time spent gaming.

## Method

A database search identified 12 independent CBT studies. Effect size estimates (Hedges'  $g$ ) with associated confidence intervals, prediction intervals, and  $p$  values for each pre–post treatment outcome, were calculated. Study reporting quality was evaluated in accordance with the Consolidated Standards of Reporting Trials guidelines. Subgroup and moderator analyses were undertaken to investigate potential sources of heterogeneity.

## Results

CBT demonstrated high efficacy in reducing IGD symptoms ( $g = 0.92$ ; [0.50, 1.34]) and depression ( $g = 0.80$ , [0.21, 1.38]), and showed moderate efficacy in reducing anxiety ( $g = 0.55$ , [0.17, 0.93]) at post-test. There was insufficient power to determine whether CBT was capable of reducing time spent gaming. Treatment gains at follow-up were nonsignificant across the four treatment outcomes.

## Conclusions

The pooled findings suggest that CBT for IGD is an effective short-term intervention for reducing IGD and depressive symptoms. However, the effectiveness of CBT for reducing actual time spent gaming was unclear. Given the limitations of this evidence base, there is a need for more rigorous studies to determine the potential long-term benefits of CBT for IGD.

## Public Health Significance Statement

Given the rise in treatment demand for internet gaming disorder (IGD) and problematic gaming, it is necessary to determine which treatments are most effective for whom and under which conditions.

This review shows that cognitive-behavioural therapy for IGD, which is often considered the first-line therapy, can improve IGD symptoms and comorbid depression. However, treatment gains tend to be short-term and their effect in reducing time spent gaming is unclear. Programs that target problematic gaming may be improved by additional support beyond the standard program of therapy sessions. More funding and resources are needed to support the development of a more rigorous evidence base on IGD and its treatment.

## Citing Literature