knowledge snapshot

The relationship between working memory and gaming and gambling disorders

What this article is about

There is evidence suggesting a link between addictive disorders and mental functioning. Research has shown that behavioural addictions share similar neural mechanisms as substance use disorders. This is especially true for gambling and internet gaming disorders. Researchers have found that the executive and reward brain networks are involved in addictions. The executive network selects possible behavioural responses. The brain areas involved in the reward network are active when people assess the value of rewards. These networks are involved in cognitive functions such as working memory (WM) and decision-making.

This article provides insight into whether decreased WM performance is associated with gambling or gaming disorders. It also looks at whether there is a link between WM and the severity of these disorders.

What was done?

This review follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The researchers searched PsycINFO, Web of Science, and Scopus databases. They included only peer-reviewed articles published from 2012 onwards.

The included studies had to be published in English and be quantitative (i.e., present numerical data). They had to investigate working memory and gambling/gaming disorder or problem gambling/gaming. They also had to assess problem/disordered gaming or gambling according to the Diagnostic and Statistical Manual Version IV (DSM-IV), DSM-5, or any other qualified instruments.

Why is this article important?

This article is a review of the association between working memory (WM) and gaming and gambling disorders. The article highlights that WM may be a predictor of gambling and gaming disorders. The results show decreased WM capacity in people with gaming disorder. People with gambling disorder may also show decreased WM capacity.

The researchers used the Joanna Briggs Institute (JBI) critical appraisal instrument to assess the risk of bias of the included studies. This instrument has eight items with four possible answers (yes, no, unclear, and not applicable). The items assess the following:

- Whether the criteria for inclusion in the study sample were clearly defined.
- Whether the study participants and setting were described in detail.
- Whether exposure was measured validly and reliably.
- Whether objective and standard criteria were used to measure the condition.
- Whether confounding factors were identified. These factors could influence the relationship between the predictor and outcomes.
- Whether strategies used to deal with the confounding factors were stated.
- Whether the outcomes were measured in a valid and reliable way.
- Whether appropriate statistical analysis was used.

What you need to know

The researchers initially identified 6,260 studies. After removing duplicates and screening the studies, 17 were included in this review. These studies were published between 2012 and 2022. Nine studies were conducted in Asia, six in Europe, and two in North America. Six studies were on gambling disorders, five were on gaming disorders, and one study looked at both. Three studies examined problem gambling and two studies examined problem gaming.

When looking at the risk of bias, the average was 7.23 out of 8. This means the studies met almost all criteria for this test. But some studies did not identify confounding factors or strategies to deal with them.

Two of the six studies on gambling disorder found that WM decreased in people with gambling disorder. Four studies did not find differences in WM performance when comparing people with and without gambling disorder. Two of the three studies on problem gambling found a decrease in WM performance with more severe gambling problems.

Four of the six studies on gaming disorder found a link between WM performance and gaming disorder. However, two studies found that WM performance did not differ among people with and without gaming disorder, including a study with adolescents. The two studies on problem gaming did not find a link between WM performance and problem gaming.

Four studies also compared gambling/gaming disorder and substance use disorders. One study compared WM in people with both problem gambling and ADHD (attention deficit hyperactivity disorder) and those with only problem gambling. WM appeared to be more reduced in substance use disorders than in gambling/gaming disorder.

Who is it intended for?

This article is intended for researchers and treatment providers who are interested in the relationship between WM and gambling or gaming disorders.

About the researchers

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Citation

Ngetich, R., Burleigh, T. L., Czakó, A., Vékony, T., Németh, D., & Demetrovics, Z. (2023). Working memory performance in disordered gambling and gaming: A systematic review. *Comprehensive Psychiatry, 126*, 152408. https://doi.org/10.1016/j.comppsych.2023.152408

Study funding

This study was funded by the Hungarian National Research Development, and Innovation Office; by an ANR grant awarded within the framework of the Inserm CPJ; and by the National Brain Research Program of the Hungarian Academy of Sciences.

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