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Individuals with gambling-related problems don't often seek treatment, sometimes because they don't realize they have a problem. Brief screens, such as the Brief Biosocial Gambling Screen (BBGS), give people—even non-clinicians—a quick way to decide whether someone requires further evaluation. This week, as part of our Special Series on Gambling and Addiction during Problem Gambling Awareness Month, we review a study by Caroline Temcheff and her colleagues. This team studied how to screen for Gambling Disorder among college athletes.

What was the research question?

Which diagnostic items are most useful for distinguishing people who meet criteria for Gambling Disorder from those who gamble recreationally, among student athletes?

What did the researchers do?

The researchers used data from a sample of 8674 student-athletes who participated in the 2008 National Collegiate Athletic Association study, which assessed gambling behaviors and signs of problem gambling among college athletes (e.g. frequency of gambling, development of withdrawal symptoms, financial trouble because of gambling). The researchers used classification and regression tree analysis to narrow down which criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) were best at identifying Gambling Disorder in the sample.

What did they find?

Temcheff and colleagues reported that 3 primary criteria were most useful in identifying Gambling Disorder among male student athletes: (1) *preoccupation*, (2) *tolerance*, and (3) *gambling as a coping strategy*. The researchers examined the sensitivity and specificity of this possible screen. They found that 87.5% of participants who met the full diagnostic criteria for Gambling Disorder were correctly identified by these 3 questions alone (sensitivity), and 96.5% of the sample *without* Gambling dDsorder was identified correctly (specificity). They

reported one criterion was most useful for identifying Gambling Disorder among female student athletes: *chasing losses*. See Figure for more information.

	DSM-5 Criteria	Sensitivity (%)	Specificity (%)
Men (n = 6313)	"Have there been periods in the past year where you spent a lot of time thinking about gambling?" (Preoccupation)	65.3	97.2
	"Have there been periods in the past year where you spent a lot of time thinking about gambling?" (Preoccupation) and "Have you needed to gamble with larger bets in order to obtain the same feeling of excitement in the past year?" (Tolerance)	79.8	96.8
	"Have there been periods in the past year where you spent a lot of time thinking about gambling?" (Preoccupation) and "Have you needed to gamble with larger bets in order to obtain the same feeling of excitement in the past year?" (Tolerance) and "Do you gamble as a way of dealing with personal problems, or to relieve uncomfortable emotions such as nervousness or sadness?" (Coping)	87.5	96.5
Women (n = 2361)	"After you lose money gambling, do you often return another day to try to win back your losses?" (Chasing losses)	65.2	98.4

Figure. Results of the analysis using DSM-5 criteria to identify problem gambling among student athletes. Adapted from the original study by Temcheff, Paskus, Potenza & Derevensky (2016).

Why do these findings matter?

These findings suggest a new Gambling Disorder screen for a special at-risk sub-population, student athletes. However, the items that are the best fit for some populations might vary from those that are best for the general population. For

comparison, the BBGS has higher sensitivity and specificity among the general population than the screen reviewed here; it uses the criteria of *withdrawal* ("Have you become restless irritable or anxious when trying to stop/cut down on gambling?), *lying* ("Have you tried to keep your family or friends from knowing how much you gambled?*)* and *relying on others* ("Did you have such financial trouble as a result of your gambling that you had to get help with living expenses from family, friends or welfare?").

Every study has limitations. What were the limitations in this study?
Because there were relatively low rates of Gambling Disorder among female athletes in this sample (0.8%), we can't feel very confident in the gender-specific pattern in the results. It's possible that it will not hold up in a sample that includes a larger percentage of female athletes with Gambling Disorder. Some psychometric characteristics of these items remain unknown. Therefore, further study, including better assessments of reliability and predictive validity, is required to evaluate if questions about preoccupation, tolerance, and gambling as a coping strategy are an appropriate screening tool for student athletes.

For more information:
If you're looking for gambling programs and resources check what's available at the National Council on Problem Gambling website or you can call/text the 24-hour Confidential National Helpline at 1-800-522-4700. Join the CHARGE. For more information about the Cambridge Health Alliance Readiness for Gambling Expansion (CHARGE) Initiative and Gambling Disorder Screening day on March 8th, go to our website.

— Emily Shoov

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