

Pathological and disordered gambling: a comparison of DSM-IV and DSM-V criteria

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The proposed revision of the diagnostic criteria for pathological gambling within the DSM suggests removing the criterion of committing illegal acts and reducing the threshold to four symptoms. It has been argued that changing the diagnostic criteria will not impact the prevalence rate of pathological gambling, however there are no published studies examining prevalence rate stability. The impact of the proposed DSM-V criteria using data from a national study assessing gambling behaviors among college student-athletes was examined. Comparison of pathological or disordered gamblers vs sub-threshold gambling severity using current DSM-IV criteria and the proposed DSM-V diagnostic criteria suggests that the proportion of men classified as pathological or disordered gamblers changes. For females, comparisons did not reach statistical significance. The subcommittee of the DSM-V should note that the proportion of males meeting the diagnostic criteria for pathological gambling may be influenced by classification system. Questions related to the validity of the proposed classification system are raised.

Keywords: gambling; pathological gambling; classification; diagnosis; Diagnostic and Statistical Manual of Mental Disorders

In 1980 the American Psychiatric Association (APA) officially recognized 'pathological gambling' as a valid clinical disorder in the Diagnostic and Statistical Manual of Mental Disorders, Third edition (DSM-III; American Psychiatric Association, 1980). At that time, 'pathological gambling' was placed under the umbrella of 'impulse control disorders', where it has remained ever since. The DSM-III diagnosis of pathological gambling was predicated upon the idea that an individual was 'chronically and progressively unable to resist impulses to gamble' and that the individual's gambling compromised 'family, personal, or vocational pursuits' as indicated by positive endorsement of at least three out of a possible seven items indicating personal life disruption and distress. Subsequent revisions of the DSM by the APA have led to modifications and refinement of diagnostic criteria for pathological gambling. The most recent version, the DSM-IV, identifies 10 criteria for pathological gambling (American Psychiatric Association, 1994), with individuals responding positively to at least five of the items being identified as having a pathological gambling disorder.

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Since the development of the criteria established for DSM-IV considerable work has been done to identify the prevalence rates in the general population and to better understand the clinical etiologies and behaviors associated with this disorder. As part of its major revision of the DSM, the APA established subcommittees to examine each of the disorders currently classified as well as to potentially identify new disorders to be classified. With respect to gambling disorders, four changes are currently being proposed for the DSM-V (Petry, 2010). The first two proposed changes suggesting reclassification of pathological gambling alongside other addictions (as opposed to the impulse control disorders), and the re-naming of the disorder to 'disordered gambling', have been met with generally positive feedback (Mitzner, Whelan & Meyers, 2010), although a number of clinicians raised some concerns during various workshops of the National Center for Responsible Gaming in 2010. The other two proposed changes are more substantive with respect to the identification and assessment of pathological or disordered gambling. These changes include the removal of the 'illegal acts' criterion, and the reduction of the disordered gambling threshold to the endorsement of four instead of five symptoms. This reduction in the number of items required for diagnosis has been met with more mixed reviews. Most recently, Nancy Petry (2010), a member of the DSM-V Workgroup cited various studies (Jimenez-Murcia et al., 2009; Stinchfield, 2003; Stinchfield, Govoni & Frisch, 2005) and suggested that lowering the threshold from five positive endorsements to four 'improves classification accuracy (page 114)'. Petry continued to argue that according to some preliminary analyses, when the legal criterion was eliminated, similar prevalence rates were found in the general population as with other published studies using the four-criteria threshold. Since there are no published studies examining the stability of the prevalence of pathological or disordered gambling between the current DSM-IV classification scheme and the proposed DSM-V classification scheme, the aim of the present study is to use a large sample of college students to examine whether the proportion of individuals classified as pathological or disordered gamblers differs based on the newly proposed classification system. College students provide an interesting test group as their reported prevalence rates of pathological gambling are generally higher than the adult population (Volberg, Gupta, Griffiths, Ólason & Delfabbro, 2010).

Methods

Participants

The present study utilized data from the National Collegiate Athletic Association study designed to assess gambling behaviours and problems among US college student-athletes. The NCAA is a membership organization representing the athletic interests of over 1000 colleges and universities in the USA.

A total of 19,942 surveys were administered in 2008. Approximately 62% of participants were male ($n = 12,364$), which marginally over-represented the proportion of males in the student-athlete population reported by the NCAA (58% males; NCAA, 2010).

Ethics approval was obtained from the NCAA's independent research review board as well as the institutional review committees of respective institutions where the surveys were administered.

Survey administration

A multi-stage cluster sampling design was utilized to collect data. Faculty Athletics Representatives (FARs) of all NCAA member colleges were approached to participate.

The NCAA research staff requested that FARs survey all members of between one and three pre-specified teams. Teams were selected based on a stratified random sampling procedure to ensure that all sports in each of the three NCAA divisions would be adequately represented in the total sample. All students and FARs were assured that participation would remain anonymous at the student and institution level. Student-athletes from each team were surveyed at the same time without coaches or other team personnel present. Completed surveys were not handled by FARs. Rather, students deposited completed surveys into a pre-paid envelope with one student-athlete assuming responsibility for sealing and mailing the package to an independent third-party company that compiled and entered the data.

As survey responses were submitted anonymously, neither institutional nor student response rates could not be absolutely calculated. However, the institutional response rate was estimated to be greater than 60% based upon previous surveys conducted in this manner and the total number of completed surveys received.

Measures

Gambling involvement

A modified version of the Gambling Activities Questionnaire (GAQ; Gupta & Derevensky, 1996) was used to obtain information regarding frequency of participation in gambling activities over the past 12 months. Participants were asked to specify frequency of engaging in 14 different gambling activities on a 5-point Likert scale ranging from 'not at all' to 'daily'. All individuals who reported not gambling in any form in the past year were categorized as non-gamblers and were not included in the present study.

Gambling severity

Those who reported having gambled at least once in the previous year (i.e. gamblers) were further divided into three categories based upon their responses to a questionnaire format of the DSM-IV-TR (American Psychiatric Association, 1994) criteria for pathological gambling. This instrument contains 10 items that query the presence of various symptoms and diagnostic criteria associated with pathological/disordered gambling including preoccupation with gambling, the need to increase wagers to achieve the same level of excitement (tolerance), loss of control, withdrawal symptoms, escape, chasing of losses, lying to family, illegal activities to pay for gambling, disruptions to family or job and borrowing money to pay for gambling debts. This questionnaire format has been shown to have strong internal consistency (0.92) and a good agreement rate (87%) with another measure of problem gambling severity (Stinchfield, Govoni & Frisch, 2005).

Data preparation

Rigorous data cleaning procedures were implemented to eliminate, as much as possible, invalid data resulting from dubious responses to the surveys. Included in these cleaning procedures were a series of validity checks and Item Response Theory techniques to identify questionable patterns of responding. Cases revealing strong evidence of insincere responses (e.g. statistically unlikely combination of responses; inconsistent responding; responses in some portions of the survey that contradict responses elsewhere) were excluded from analyses.

Data analysis

Participants' answers to the DSM-IV criteria were scored in two ways according to the DSM-IV and potential DSM-V. In order to arrive at a classification based on DSM-IV criteria, a sum consisting of all 10 items was first created. Those who endorsed five or more of the 10 criteria were classified as 'pathological gamblers', those with three or four positively endorsed items were classified as 'at-risk gamblers', and those who endorsed zero to two DSM-IV items were classified as 'social gamblers'.

In order to arrive at a classification scheme based upon the proposed DSM-V classification (Petry, 2010), a sum of the nine items were calculated. Item eight, which deals with committing illegal acts in order to finance gambling behaviours, was excluded from the summation as per the newly proposed DSM-V criteria. As suggested by Petry (2010), the threshold for classification as 'disordered gambler' was then reduced from five to four positively endorsed items. Those with two or three positively endorsed items were classified as 'at-risk gamblers', and those who endorsed zero to one of the nine retained DSM-IV items were classified as 'social gamblers'.

Given the new data set contained two observations per individual, the McNemar test was chosen as an appropriate test statistic given that it is designed to test discrepancies within matched pair designs (Stokes, Davis & Koch, 2000). A generalization of the McNemar test for polytomous outcomes, called the McNemar/Stuart–Maxwell test (Stuart, 1955; Maxwell, 1970), was used to assess movement of the sample over the three gambling participation categories based on DSM classification system. Where significant, the standard McNemar test was used to assess significant changes in the proportion of individuals classified as pathological/disordered gamblers according to classification system. Given vast reported discrepancies in prevalence of problem gambling between males and females, analyses were completed independently for both males and females.

Results

Cohen's κ , which was used to measure the agreement between the two classification schemes, was 0.74 (0.74 for males and 0.73 for females). This suggests 'significant' but not 'perfect' agreement between the two classification schemes (Viera & Garrett, 2005). Weighted κ s are 0.83 for males and 0.82 for females.

The distribution of the population across the three gambling severity categories for males is presented in Table 1. Whereas according to DSM-IV criteria, 3.4% of males can be classified as pathological gamblers, 4.3% of males are classified as disordered gamblers according to proposed DSM-V criteria. Table 2 shows the matrix for change in category membership for males. This matrix yielded a McNemar/Stuart–Maxwell test statistic $Q_m = 250$, $df = 2$, $p < 0.0001$, suggesting that the proportion of men classified in the three categories significantly changes based on the different classification systems. Social and at-risk groups were then collapsed in order to allow pairwise comparison between the threshold pathological or disordered gambler category vs sub-threshold gambling severity. The McNemar test was statistically significant ($Q_m = 59.00$, $df = 1$, $p < 0.0001$).

Table 1. Sample distribution across the three gambling severity categories for males ($n = 6489$).

	Social gamblers	At-risk gamblers	Probable pathological/disordered gamblers
DSM-IV	6069 (93.5%)	198 (3.1%)	222 (3.4%)
DSM-V	5878 (90.6%)	330 (5.1%)	281 (4.3%)

Table 2. Changes in gambling category membership for males ($n = 6489$) according to DSM-IV and proposed DSM-V criteria.

		DSM-IV			Totals
		Social	At-risk	PPG	
DSM-V	Social	5878	0	0	5878
	At-risk	191	139	0	330
	PPG	0	59	222	281
	Totals	6069	198	222	6489

suggesting that the proportion of men classified as pathological or disordered gamblers changes with classification system.

The distribution of the population across the three gambling severity categories for females is presented in Table 3. Consistent with numerous other studies, these results show that gambling problems are much less common among women than men (see Table 1). According to DSM-IV criteria, 0.7% of females are classified as pathological gamblers, whereas it increases slightly to 0.8% according to the new proposed criteria. Table 4 shows the matrix for category membership for females. This matrix yielded a McNemar/Stuart–Maxwell test statistic $Q_m = 19$, $df = 2$, $p < 0.0001$, suggesting that the proportion of women classified in the three categories similarly changes with classification system. However, when the social and at-risk groups were collapsed in order to allow pairwise comparison between the threshold pathological or disordered gambler category vs sub-threshold gambling severity, the McNemar test was not found to be significant.

Discussion

The newly proposed DSM-V is being designed to be more reflective of our current knowledge of problem gambling. Its proposed changes are an attempt at an improvement in the categorization of pathological gambling as well as improving the diagnostic criteria (Petry, 2010). This paper is not designed to address the re-categorization of where within the DSM pathological or disordered gambling should rest or whether disordered gambling is a better term than pathological gambling. The goal of this paper was to determine whether or not the prevalence rates would in fact change as a result of classification and criteria. The current results, using a large database of college student athletes suggest that for both men and women, the proposed changes in the classification scheme produced changes in the distribution between the three groups of gamblers based upon their gambling severity. However, the results also suggested that significant changes in the proportion of individuals classified as pathological or disordered gamblers only occurred among men. Importantly, given that the threshold is proposed to be lowered from five criteria necessary for diagnosis to four, it is impossible even with the removal of item

Table 3. Sample distribution across the three gambling severity categories for females ($n = 2346$).

	Social gamblers	At-risk gamblers	Probable pathological/disordered gamblers
DSM-IV	2318 (98.8%)	11 (0.5%)	16 (0.7%)
DSM-V	2303 (98.2%)	24 (1.0%)	19 (0.8%)

The fact that within this sample the proportion of men in the pathological or disordered gambling group was found to markedly change, raises further important question as to which classification might better reflect the reality of pathological or disordered gambling? It has been previously suggested that a four symptom cutoff rather than the current five symptom cutoff might better discriminate individuals who have the disorder, and its associated correlates and consequences than those who do not (Stinchfield, 2003). As previously discussed by Mitzner et al. (2010), the current dichotomous nature of the pathological gambling may not be ideal in both research and clinical settings, and having a more continuous view of diagnosis may be more useful to be able to recognize and track sub-clinical gamblers. The criteria suggested for DSM-V need to be examined and validated within clinical populations in order to adequately address whether these newly proposed criteria and likely increased prevalence rate more closely resembles reality.

Limitations

Although participants were assured that all responses were anonymous, the current study is subject to typical problems associated with using self-report data without corroboration. In addition, participants in this study were all college athletes recruited through their athletic teams. This fact could have affected the overall prevalence rates of pathological or disordered gambling, which appeared somewhat higher than previously reported prevalence rates for men (Welte, Barnes, Tidwell & Hoffman, 2008). Additionally, most participants were in their early twenties, leaving questions regarding the stability of the observed trends in other age groups open.

Conclusions

Despite the limitations, the results suggest that the suggested changes in DSM criteria, for this subset of college students, would alter the prevalence of pathological gambling within young men. Whether the threshold of four criteria instead of five would more accurately reflect the presence of a gambling problem is a question that needs to be addressed using clinical interviews with pathological gamblers.

Notes on contributors

Caroline E. Temcheff, Ph.D., is a Clinical Psychologist and Postdoctoral Fellow at the International Centre for Youth Gambling Problems and High-Risk Behaviors. Her areas of research interests lie mainly in longitudinal life-course trajectories of maladaptive behavioural patterns in childhood, and longitudinal predictors of gambling problems.

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Table 4. Changes in gambling category membership for females ($n = 2346$) according to DSM-IV and proposed DSM-V criteria.

		DSM IV			Totals
		Social	At-risk	PPG	
DSM-V	Social	2303	0	0	2303
	At-risk	16	8	0	24
	PPG	0	3	16	19
	Totals	2319	11	16	2346

8 that an individual would move from the pathological gambler category according to DSM-IV to the 'risk' category according to DSM-V. Therefore, when individuals changed categories, they always moved into a more severe category according to DSM-V classification.

Though there was no statistical change in the number of women classified as pathological or disordered gamblers, results did suggest that there was some movement over the three groups. In fact, the number of women in the at-risk gambling group more than doubled when the proposed DSM-V criteria was used (from 11 women according to DSM-IV criteria to 24 women according to DSM-V criteria). The question of whether diagnostic criteria and thresholds should remain the same for men and women is another question that must be addressed empirically as well as clinically.

It is important to note that even though this study was carried out on a collegiate population, 55.4% (123 of 222) of men and 37.5% (six out of 16) women who met DSM-IV criteria for pathological gambling endorsed the illegal acts criterion. The fact that over half of the men and over a third of women reported engaging in illegal acts to finance gambling suggests that the endorsement rates for this criterion might not be as low within collegiate samples as has been previously reported in community samples (see Blanco, Hasin, Petry, Stinson & Grant, 2006). In our study, 51.8% of men endorsed each of the 'losing a relationship' and the 'relying on others to bail out' criteria, making these the least frequently endorsed items among pathological gambling male college athletes.

There might be several implications that follow from changing prevalence rates, even by as little as 1%. A 1% increase in prevalence can translate into a very significant change in the number of individuals who can be diagnosed with a disorder. Since this study suggests that increases in prevalence rates would be an artifact of changes in diagnostic criteria (as opposed to real increases in problem behaviours within a population), treatment centers would be likely not see an increased volume of clients seeking help for gambling addictions. However, for treatment centers that require meeting diagnostic criteria for service delivery, these changes in diagnostic criteria might have direct implications in terms of the numbers of individuals who would qualify for treatment. This would potentially have serious effects on demands made on clinicians and might result in longer waiting lists. Changing diagnostic criteria may necessitate the expansion of existing facilities or the creation of new treatment facilities in many areas. This expansion of services may be warranted if the proposed DSM-V diagnostic criteria are clinically found to be more reflective of a severe gambling problem than existing DSM-IV criteria.

Other implications exist in terms of research. Changing diagnostic criteria such that statistically significant differences exist in prevalence rates within the same sample as shown in this study, poses problems for comparisons of prevalence rates over time.

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