

brief report

Alcohol Misuse in a Treatment-Seeking Sample of Pathological Gamblers

Emmert Roberts,^{1,2,3} Venetia Leonidaki,³ Zoe Delaney,³ & Henrietta Bowden-Jones³

¹ National Addiction Centre, Institute of Psychiatry, Psychology and Neuroscience, Kings College London, London, UK

² South London and the Maudsley NHS Foundation Trust, London, UK

³ National Problem Gambling Clinic, Central and North West London National Health Service Foundation Trust, London, UK

Abstract

We aimed to estimate the prevalence of alcohol misuse and examine its relationship with gambling severity and psychological distress in a UK treatment-seeking sample of pathological gamblers. Approximately one in four patients (27.1%) scored ≥ 8 on the Alcohol Use Disorders Identification Test (AUDIT) screening tool indicating alcohol misuse, and one in four (28.1%) reported abstinence. There was no evidence of an association between alcohol misuse and gambling severity or psychological distress level. Compared to the UK general population a significantly higher proportion demonstrated probable alcohol dependence (1.2% vs. 6.3%, $p < 0.001$).

Keywords: Gambling, Alcohol, Prevalence, AUDIT, Screening

Introduction

Individuals diagnosed with pathological gambling commonly have co-morbid substance use disorders, with alcohol misuse often reported as highly prevalent within this population (Petry et al., 2005). Previous work has reported that pathological gamblers with co-morbid alcohol misuse are at higher risk of long-term negative outcomes compared to those without co-morbidity (Abbott et al., 2004). Despite this determination, there are nevertheless only limited recommendations regarding alcohol misuse screening in the assessment and management of pathological gamblers

(Thomas et al., 2011). This paucity perhaps contributing to inconsistent practice concerning which pathological gamblers, if any, should be routinely screened for alcohol misuse. Screening for such misuse at the outset of an individual's treatment journey may provide useful clinical information and thereby productively alter the treatment trajectory.

General population US survey data reports almost three quarters of pathological gamblers are likely to have a co-morbid alcohol use disorder (AUD; Petry et al., 2005); however, recent estimates in treatment-seeking populations report a pooled prevalence of 21.2% (95% *CI* [15.6, 28.1]; Dowling et al., 2015). Variation exists in the underlying source prevalence estimates, ranging from 5.2% to 38.1%, with few prevalence estimates reported in samples outside North America. Additionally, few studies report if AUD is more prevalent in particular subsamples of pathological gamblers who might be at increased risk, e.g., participants experiencing more severe gambling symptomatology, or subjects experiencing higher levels of psychological distress (Suomi et al., 2014).

Whereas general population surveys conducted in the United Kingdom (UK) have previously demonstrated that increased alcohol consumption was significantly associated with pathological gambling (Griffiths et al., 2010), to our knowledge no reports have specifically examined the prevalence of alcohol misuse, nor its relationship with gambling severity or psychological distress, within treatment-seeking samples of pathological gamblers in the UK. To address these gaps, we aimed to estimate the prevalence of alcohol misuse, examine its relationship with gambling severity and psychological distress, and comment on how prevalence compares to the general population in a sample of pathological gamblers presenting to the UK National Problem Gambling Clinic (NPGC).

Method

This work represents a retrospective electronic healthcare record clinical audit. All procedures were carried out in accordance with ethical guidelines detailed in the 1964 Helsinki Declaration or any of its succeeding amendments. Ethical review was not required in accordance with the local legislation and institutional requirements for audit, and all participants provided written informed consent.

Participants

We retrospectively examined the electronic healthcare records of all patients attending initial assessment at the NPGC between November 13, 2019 and February 13, 2020. Those persons who received a diagnosis of pathological gambling, as per the International Classification of Diseases, tenth revision (ICD-10), were included in the study sample. The NPGC is a national free of charge National Health Service (NHS) clinic accepting referrals for anyone over the age of 16.

Measures

At initial assessment clinical and demographic characteristics are routinely collected, alongside the following patient-reported questionnaires: As a measure of pathological gambling severity the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001; Holtgraves, 2009), as a measure of psychological distress the Clinical Outcomes in Routine Evaluation-10 (CORE-10; Evans, 2000), and as a screening tool for alcohol misuse the Alcohol Use Disorder Identification Test (AUDIT; Saunders et al., 1993). In all cases, higher scores indicate worsening severity.

The prevalence of abstinence from alcohol (AUDIT score 0), low-risk drinking (AUDIT score 1–7), hazardous drinking (AUDIT score 8–15), harmful drinking (AUDIT score 16–19), and probable alcohol dependence (AUDIT score ≥ 20) were collected. These were subsequently collapsed into those patients screening positively for alcohol misuse (AUDIT score ≥ 8), and those screening negatively for alcohol misuse (AUDIT score < 8).

Statistical analysis

Unpaired *t*-tests compared the difference in mean PGSI and CORE-10 scores between those patients screening positively or negatively for alcohol misuse, and Pearson correlation coefficients (*r*) examined the relationship between patient's AUDIT, PGSI and CORE-10 scores. In addition, to provide wider clinical context for the prevalence estimates, we used Pearson's χ^2 test to compare the proportion of pathological gamblers in differing AUDIT categories to the proportion of persons in corresponding categories within the UK general population, as reported in the Adult Psychiatric Morbidity Survey (APMS; APMS, 2014). All analyses were conducted in STATA IC version 15 with the significance level set at 0.05.

Results

One hundred and eight individuals were diagnosed with pathological gambling in the study period and formed the final sample. The mean age of patients was 39.3 years ($SD = 11.5$), $n = 98$ (90.7%) were male, and $n = 96$ (88.9%) had a validly coded AUDIT score. Mean PGSI score was 20.3 ($SD = 5.5$), and mean CORE-10 score was 21.4 ($SD = 9.4$).

There were no significant differences in clinical or demographic variables between patients with a missing AUDIT score compared to those with a validly coded AUDIT score.

AUDIT scores ranged from 0–26, and $n = 27$ (28.1%) were abstinent from alcohol, $n = 43$ (44.8%) were drinking at a low-risk level, $n = 16$ (16.7%) were drinking at a hazardous level, $n = 4$ (4.2%) were drinking at a harmful level, and $n = 6$ (6.3%) had probable alcohol dependence. As such $n = 26$ (27.1%) screened positive for alcohol misuse.

Table 1

The number and percentage of persons in AUDIT score drinking profile categories in pathological gamblers and the UK general population

Drinking Profile (AUDIT Score)	Pathological Gamblers <i>n</i> (%)	General Population <i>n</i> (%)	<i>p</i> -value
Total	96 (100%)	7218 (100%)	
Abstinent (0)	27 (28.1%)	1646 (22.8%)	0.22
Low Risk Drinking (1-7)	43 (44.8%)	4150 (57.5%)	0.01*
Hazardous Drinking (8-15)	16 (16.7%)	1198 (16.6%)	0.99
Harmful Drinking (16-19)	4 (4.2%)	137 (1.9%)	0.11
Probable Dependence (≥ 20)	6 (6.3%)	87 (1.2%)	<0.001*
No Alcohol Misuse (<8)	70 (72.9%)	5796 (80.3%)	
Alcohol Misuse (≥ 8)	26 (27.1%)	1422 (19.7%)	0.07

*Significant at the 0.05 level.

The data were consistent with there being no difference ($p = 0.47$) between the mean PGSI score in the group screening positively for alcohol misuse (20.9), compared to the group screening negatively for alcohol misuse (20.0). There was no evidence of a correlation between patient's AUDIT and PGSI score ($r = 0.08$, $p = 0.44$).

The data were consistent with there being no difference ($p = 0.56$) between the mean CORE-10 score in the group screening positively for alcohol misuse (20.1), compared to the group screening negatively for alcohol misuse (21.5). There was no evidence of a correlation between patient's AUDIT and CORE-10 score ($r = 0.004$, $p = 0.97$).

No significant difference emerged in the overall proportion of pathological gamblers with alcohol misuse compared to the general population ($p = 0.07$). Additionally, no significant difference revealed itself in the proportion of pathological gamblers abstinent from alcohol ($p = 0.22$), with hazardous drinking ($p = 0.99$), or with harmful drinking ($p = 0.11$). There was however a significantly lower proportion of pathological gamblers with low-risk drinking (44.8% vs. 57.5%, $p = 0.01$), and a concomitant significantly higher proportion with probable alcohol dependence (6.3% vs. 1.2%, $p < 0.001$). The number and proportion of persons in each AUDIT category can be found in Table 1.

Discussion

We demonstrated that in a treatment-seeking sample of pathological gamblers approximately one in four (27.1%) screened positively for co-morbid alcohol misuse. However, the severity of alcohol misuse did not appear to be correlated with either the severity pathological gambling or the degree of psychological distress. Additionally, approximately one in four (28.1%) pathological gamblers reported abstinence from alcohol within the twelve-month timeframe of the AUDIT

questionnaire. The findings could support the promotion of universal alcohol misuse screening in all pathological gamblers.

The main strengths lie in the use of validated measures to assess alcohol misuse, pathological gambling severity and psychological distress in a relatively large sample of pathological gamblers. The prevalence of alcohol misuse in our sample is significantly higher when compared to previous pooled prevalence estimates (27.1% vs. 21.2%, $p = 0.003$; Dowling et al., 2015). Although this determination may be partially explained by differences within studied populations, or because of different definitions of alcohol misuse, we used AUDIT categories compared to DSM-V criteria for an alcohol use disorder, this discrepancy merits further exploration in larger samples across global regions. Although no differences were demonstrated between the overall proportion of patients with alcohol misuse compared to the general population in the UK, such a finding may be in fact because of a lack of statistical power or underlying demographic differences between the studied populations.

Whereas our findings do not suggest that targeted alcohol misuse screening in individuals with more severe gambling symptoms, or those with higher levels of psychological distress is currently merited, the elevated proportion of those with alcohol dependence could be used to promote universal alcohol misuse screening in all pathological gamblers. Further exploration into the prevalence of alcohol misuse, its temporal associations with pathological gambling, and the utility of universal screening is warranted in larger samples, to ensure alcohol misuse is both appropriately identified and treated within this population.

References

Abbott, M. W., Williams, M. M., & Volberg, R. A. (2004). A prospective study of problem and regular nonproblem gamblers living in the community. *Substance Use & Misuse*, *39*, 855–884. <https://doi.org/10.1081/JA-120030891>

Adult Psychiatric Morbidity Survey (APMS). (2014). *Adult Psychiatric Morbidity Survey: Survey of mental health and wellbeing, England, 2014*. NHS Digital. <https://digital.nhs.uk/data-and-information/publications/statistical/adult-psychiatric-morbidity-survey/adult-psychiatric-morbidity-survey-survey-of-mental-health-and-wellbeing-england-2014>

Dowling, N. A., Cowlshaw, S., Jackson, A. C., Merkouris, S. S., Francis, K. L., & Christensen, D. R. (2015). Prevalence of psychiatric co-morbidity in treatment-seeking problem gamblers: A systematic review and meta-analysis. *Australian & New Zealand Journal of Psychiatry*, *49*, 519–539. <https://doi.org/10.1177/0004867415575774>

Evans, J. M.-C., Margison, F., Barkham, M., Audin, K., Connell, J., & McGrath, G. (2000). CORE: Clinical outcomes in routine evaluation. *Journal of Mental Health*, *9*, 247–255. <https://doi.org/10.1080/jmh.9.3.247.255>

Ferris, J. A., & Wynne, H. J. (2001). *The Canadian Problem Gambling Index: Final report*. Ottawa, ON: Canadian Centre on Substance Abuse. Centre. [https://www.greo.ca/Modules/EvidenceCentre/files/Ferris%20et%20al\(2001\)The_Canadian_Problem_Gambling_Index.pdf](https://www.greo.ca/Modules/EvidenceCentre/files/Ferris%20et%20al(2001)The_Canadian_Problem_Gambling_Index.pdf)

Griffiths, M., Wardle, H., Orford, J., Sproston, K., & Erens, B. (2010). Gambling, alcohol, consumption, cigarette smoking and health: Findings from the 2007 British Gambling Prevalence Survey. *Addiction Research & Theory*, *18*, 208–223. <https://doi.org/10.3109/16066350902928569>

Holtgraves, T. (2009). Evaluating the Problem Gambling Severity Index. *Journal of Gambling Studies*, *25*, 105. <https://doi.org/10.1007/s10899-008-9107-7>

Petry, N. M., Stinson, F. S., & Grant, B. F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *The Journal of Clinical Psychiatry*. <https://doi.org/10.4088/jcp.v66n0504>

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, *88*, 791–804. <https://doi.org/10.1111/j.1360-0443.1993.tb02093.x>

Suomi, A., Dowling, N. A., & Jackson, A. C. (2014). Problem gambling subtypes based on psychological distress, alcohol abuse and impulsivity. *Addictive Behaviors*, *39*, 1741–1745. <https://doi.org/10.1016/j.addbeh.2014.07.023>

Thomas, S. A., Merkouris, S. S., Radermacher, H. L., Dowling, N. A., Misso, M. L., Anderson, C. J., & Jackson, A. C. (2011). Australian guideline for treatment of problem gambling: An abridged outline. *Medical Journal of Australia*, *195*, 664–665. <https://doi.org/10.5694/mja11.11088>

Submitted January 7, 2021; accepted April 16, 2021. This article was peer reviewed. All URLs were available at the time of submission.

For correspondence: Dr. Emmert Roberts, BMBCh MRCP MRCPsych, National Addiction Centre, Institute of Psychiatry, Psychology and Neuroscience, King's College London, 4 Windsor Walk, London, United Kingdom, SE5 8AF.
E-mail: emmert.roberts@kcl.ac.uk

Competing interests: None reported (all authors).

Ethics approval: None required. This work was part of a retrospective electronic healthcare record clinical audit.

Acknowledgements: This work was supported by the Medical Research Council (MRC), as part of ER's MRC Addiction Research Clinical (MARC) Fellowship. The National Problem Gambling Clinic (NPGC) is funded by the National Health Service (NHS) and GambleAware. The funders had no contribution to the study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. All authors were independent from funders, had full access to all of the data in the study, and take responsibility for the integrity of the data and the accuracy of the data analysis. The views expressed are those of the authors and not necessarily those of the MRC, the NHS, GambleAware, or the Department of Health and Social Care.