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Short Communication

Problem gambling subtypes based on psychological distress, alcohol abuse and impulsivity

Aino Suomi [a,b,*], Nicki A. Dowling [c,b,d], Alun C. Jackson [b]

[a] Centre for Gambling Research, The Australian National University, Australia
[b] Problem Gambling Treatment and Research Centre, University of Melbourne, Australia
[c] School of Psychology, Deakin University, Australia
[d] School of Psychological Sciences, Monash University, Australia

HIGHLIGHTS

- Heterogeneity among problem gamblers calls for differential treatments to match service needs.
- Four groups of gamblers on psychological comorbidity, alcohol use and impulsivity may exist.
- Treatment focus on alternative coping strategies to gambling to manage emotional distress.
- Intensive integrated therapies can enhance treatment persistence of multimorbid gamblers.

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ABSTRACT

The notion of comorbidities within problem gambling populations has important clinical implications, particularly for appropriate treatment matching. The comorbidities most commonly cited in problem gambling literature include depression, anxiety, alcohol abuse and impulsivity. Previous research shows evidence of patterns in multiple co-occurring comorbidities and that there may be different subtypes of gamblers based on these patterns. To further the current understanding of gambling subtypes, the aim of our study was to identify subtypes of gamblers currently in treatment. Hierarchical Cluster Analysis yielded four mutually exclusive groups of 202 gamblers: (1) gamblers with comorbid psychological problems (35%); (2) 'pure' gamblers without other comorbidities (27%); (3) gamblers with comorbid alcohol abuse (25%); and (4) 'multimorbid' gamblers (13%). The four groups differed on demographic information, drug use and gambling behaviours including gambling activity and problem gambling severity. Gamblers with comorbid psychological problems were more likely to be older women on low income, more likely to report a family history of psychological problems and were more often electronic gaming machine players. As expected, 'pure' gamblers had lower problem gambling severity and were more likely to report current abstinence. Gamblers with comorbid alcohol abuse were more likely to be young men who used stimulant drugs, endorsed a higher quality of life and worked full-time. 'Multimorbid' gamblers were elevated on all comorbidities, had general problems related to their health and wellbeing and reported high rates of hostility and aggression. These groups combine elements of existing conceptual models of gambling subtypes and may require different treatments.

1. Introduction

Problem gambling is a heterogeneous condition, predominantly due to high rates of co-morbid mental health conditions, such as substance use, mood, anxiety, and personality disorders (Dowling et al., in press; Lorains, Cowlishaw, & Thomas, 2011). Comorbid psychological conditions in problem gamblers are associated with complex clinical profiles, problem gambling severity, impulsivity and other non-diagnostic difficulties (Ladd & Petry, 2003; Verdejo-Garcia, Lawrence, & Clark, 2008). In particular, impulsivity and impaired inhibitory control are key features of problem gambling (Lorains, Stout, Bradshaw, Dowling, & Enticott, 2014; Verdejo-Garcia et al., 2008).

Within clinical samples, meeting criteria for one disorder predicts meeting criteria for others (Krueger & Markon, 2006). This concept of 'multimorbidity' has recently gained popularity in mental health research (Nock, Hwang, Sampson, & Kessler, 2010) and may form the basis for subtyping problem gamblers. Growing evidence shows that

* Corresponding author at: Centre for Gambling Research, Research School of Social Science, ANU College of Arts and Social Science, Australian National University, Australia. Tel.: +61 2 6125 1964.
E-mail address: aino.suomi@anu.edu.au (A. Suomi).

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substance (mainly alcohol) abuse in gamblers tends to cluster with multiple psychological disorders and impulsivity (Petry, 2005; Stewart, Zack, Collins, & Klein, 2008). These multiple conditions are associated with adverse health outcomes, and specific disruptive behaviours including anger and hostility (Brasfield et al., 2011; Lawrence, Luty, Bogdan, Sahakian, & Clark, 2009). Existing empirical literature on gambling subtypes based on these co-occurring conditions has focused to a greater or lesser extent around three different frameworks: (1) the pathways model; (2) the externalising–internalising model; and (3) the dimensional psychopathology framework.

The pathways model (Blaszczynski & Nower, 2002) acknowledges the development of problem gambling through the dynamic interactions of economic, social, intra- and interpersonal factors. It delineates the pathway through which gambling problems manifest for three subgroups: (1) behaviourally conditioned individuals with low levels of gambling severity and psychopathology; (2) emotionally vulnerable individuals with high levels of pre-existing mood and anxiety problems; and (3) impulsive antisocial individuals with high levels of impulsivity, antisocial behaviours and a vulnerability to psychopathology prior to problem gambling. In a review of 17 studies on gambling subtypes, Milosevic and Ledgerwood (2010) concluded that three distinct subtypes consistently emerge from the literature and that they loosely fit those proposed by the pathways model.

The internalising–externalising model organises comorbidities along two latent liability factors, one accounting for the co-occurrence of externalising (substance abuse, antisocial/impulsive behaviours) and one for internalising (mood/anxiety disorders) behaviours (Krueger & Markon, 2006). Although this model is not specific to problem gambling, there is some evidence to suggest that problem gamblers can be classified into one group characterised by internalising behaviours and another group characterised by externalising psychopathology (Milosevic, 2011). Further research is required to determine the applicability of this model to problem gambling.

A dimensional psychopathology framework describes subgroups that are distinguished by the level of individual psychopathology. This framework – not specific to gambling – holds that having one disorder increases the likelihood of having several others. Any additional groups would then fall in between the two extremes, essentially forming a progressive continuum of symptom severity. This framework is supported by a substantial body of research using clustering techniques and Latent Class Analysis (LCA) that generally shows three groups of increasing (low, moderate, and high) levels of multimorbid psychopathology in gamblers (Carragher & McWilliams, 2011; Christensen, Jackson, Dowling, Volberg, & Thomas, 2014; McBride, Adamson, & Shevlin, 2010; Nower, Martins, Lin, & Blanco, 2013). LCA, in particular, tends to produce very similar two- or three-group solutions that may be explained by the inherent properties of the analyses that preclude heterogeneity within clusters.

The apparent inconsistency in subtyping attempts served as the impetus for the current exploratory inquiry into patterns of three common co-occurring conditions in problem gamblers: psychological distress, alcohol abuse and impulsivity. Specifically, the study sought to: (1) determine if there are distinct sub-groups based on the three common comorbidities in problem gamblers in treatment, and (2) determine if the subgroups are distinguishable on demographic factors, gambling and general well-being factors.

2. Method

2.1. Participants

The participants were 212 new clients in gambling programmes across three states in Australia. Nearly half (n = 107, 49%) were women with a mean age of 47.1 (SD = 13.3). The 105 men were slightly younger (M = 40.1; SD = 11.7). A detailed description of the recruitment of these participants is reported elsewhere (Suomi et al., 2013). The study protocol was approved by the University of Melbourne (#0838146) and the Victorian Department of Justice (#1119644) Human Research Ethics Committees.

2.2. Measures

Standardised measures used to form the clusters were: Kessler 6 Psychiatric Distress Scale (K6; Kessler et al., 2002); Difficulties in Emotion Regulation Scale Impulsivity subscale (DERS; Gratz & Roemer, 2004); and Alcohol Use Disorders Identification Test (AUDIT-C; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). Measures used to validate the clusters were: Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001); Gambling Motivation Questionnaire Coping subscale (GMQ; Stewart & Zack, 2008); World Health Organisation-Quality of Life BREF single item (WHOQOL-BREF; Murphy, Herrman, Hawthorne, Pinzone, & Evert, 2000); General health question (SF1; Ware, Snow, Kosinski, & Gandek, 1993); Smoking single-item question (Dickinson, Wiggers, Leeder, & Sanson-Fisher, 1989); Alcohol, Smoking, and Substance Involvement Screening (ASSIST; Humeniuk & Ali, 2006),3-month drug use; and Buss–Perry Aggression Questionnaire — Short Form Anger and Hostility subscales (BPAQ-SF; Buss & Perry, 1992; Bryant & Smith, 2001). These measures were selected for their brevity and good psychometric properties. Validation was also conducted using demographic characteristics, gambling activities, family member mental health issues and drug problems, current gambling abstinence, and self-exclusion.

2.3. Data analyses

Hierarchical Cluster Analysis (HCA) as a baseline analysis explored the subtypes of gamblers on three prevalent comorbidities (psychological distress, alcohol abuse and impulsivity). K-Means Quick Cluster Analysis and Discriminant Function Analysis (DFA) were used to test the robustness of the cluster solution obtained by HCA (Hair & Black, 2000). ANOVAs and Chi-Square analyses compared the clusters on the validation measures. Mean imputations were used where less than 30% of the scale data were missing (Hawthorne & Elliot, 2005). After imputations, the missing data was 9.5% (10 participants). The HCA was conducted for the 202 participants with no missing data.

3. Results

The HCA yielded four clusters of gamblers. ANOVAs showed significant cluster differences for psychological distress, $F(3, 199) = 67.27$, $p < .001$, alcohol abuse, $F(3, 199) = 145.39$, $p < .001$, and impulsivity, $F(3, 199) = 69.11$, $p < .001$ (Fig. 1). K-means clustering grouped 76.5% of participants in four similar clusters. DFA yielded two functions that significantly distinguished between the clusters (Wilk's Lambda, $\chi^2(4, 202) = 182.671$, $p < .001$) accounting for 99.5% of the variance: *alcohol abuse* (65.0% of the variance) loading strongly on Group 3 (alcohol abuse) and *psychological distress* (34.5% of the variance) loading strongly on Group 1 (psychological distress). There were significant cluster differences for demographics, health and wellbeing factors, gambling activities and severity and aggressive behaviours (Table 1).

3.1. Descriptions of the four groups

Group 1 (psychological distress) reported higher scores of psychological distress (M = 4.83, SD = 3.27), close to average scores on impulsivity (M = 5.54, SD = 1.51) and lower scores on alcohol abuse (M = 1.89, SD = 1.50). They were characterised by older age, female gender, retirement or sick/disability pensions, reporting family member mental health issues and drug problems, gambling on electronic gaming machines (EGMs), and using gambling as a means to cope with negative emotions.