Measuring gambling participation

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ABSTRACT

There are many parallels between research on gambling and research on alcohol use, but a striking difference is the emphasis in the former area on problem gambling rather than the use of participation measures. We outline five topics that are underdeveloped as a consequence: (i) gambling participation and future problems; (ii) moderate gambling; (iii) separate measurement of exposures and harms; (iv) predictors of participation; and (v) natural history of participation. Challenges to the future development of gambling participation measures are discussed by reference to comparable difficulties in the field of alcohol use and some examples are given as to how progress could be made. Further development of measures will necessarily occur in the context of broader scientific aims. Some recent studies are highlighted that provide hope of gains in this area. We urge further progress to yield conceptually and operationally distinct indices of exposures and harms.

Keywords alcohol use, gambling, gambling-related harm, pathological gambling, responsible gambling, risk factors.

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Submitted 12 February 2008; initial review completed 13 May 2008; final version accepted 25 September 2008

INTRODUCTION

Gambling and alcohol use share many features. In developed English-speaking countries (and many others besides) almost all people drink alcohol or gamble at some stage in their lives and, at any point in time, the majority of adults report having done so in the last year. Current criteria for diagnoses of alcohol use disorders and for pathological gambling, contained in the substance-related disorders and the impulse control disorders sections of DSM-IV-TR, respectively, include features of tolerance, withdrawal, loss of control, time spent in trying to obtain the substance/activity and social or occupational consequences [1]. The social costs of problem gambling and problem drinking are both substantial. In Australia, the Productivity Commission [2] estimated the 1997–98 annual cost of problem gambling to be between $AUS1.8 billion and $AUS5.6 billion. By comparison, the cost to the community of alcohol-related problems for 1998–99 was estimated at $AUS7.6 billion [3].

One striking difference between the respective literatures on gambling and alcohol use is the greater emphasis in the former on defining and measuring problem behaviours. While there have been attempts to convey the idea of a gambling continuum, this has been envisaged typically as a gradation of the signs and symptoms of pathological gambling [4]. There is a parallel to this approach in the variety of measures of drinking problems, but these are complemented by the use of other measures of drinking behaviour, including frequency of drinking, amount consumed on drinking occasions and average consumption levels (e.g. standard drinks per week). Such measures have been used to quantify ‘exposure’ at the individual level (not to be confused with exposures at the ecological level, such as availability of alcohol or proximity to gaming facilities). Although many studies measure levels of gambling participation, comparatively few report findings that relate these exposure variables to outcomes, such as social, psychological or physical wellbeing.

We will outline five interconnected topics in gambling research that appear underdeveloped by comparison to comparable studies of alcohol because of the limited use of gambling participation measures. We will then discuss some of the challenges and the possible benefits in attempting to address these shortcomings. The five topics are: (i) the relationship between gambling participation
and the likelihood of future adverse outcomes; (ii) consideration of moderate gambling; (iii) separate measurement of exposures and harms; (iv) predictors of level of gambling participation; and (v) the natural history of gambling participation.

**PARTICIPATION AND FUTURE ADVERSE OUTCOMES**

Guidelines for responsible drinking have been developed from studies of consumption by reference to risk of future problems, e.g. physical or mental health [5]. In contrast, we have little empirical evidence to assess whether level of gambling participation at one point in people’s lives is predictive of the onset of problem gambling or of other adverse outcomes at a later point. When the label ‘at-risk’ gambling has been used, it typically describes individuals who have existing gambling problems but at a level that falls short of clinical criteria [6]. This latter concept may be useful for developing secondary (or indicated) prevention, but it is not well suited to primary prevention.

**MODERATE GAMBLING**

The concept of moderate drinking has emerged from research studies of dose–response relationships where drinking below levels currently identified as hazardous does not carry significant risk for future health and other personal problems. There is also a more contentious literature on whether moderate alcohol consumption may have beneficial effects on health, especially cardiovascular disease [7], and all-cause mortality [8]. In contrast, very little has been reported about moderate gamblers. The terms ‘social’ or ‘recreational’ gambling [9] have been used, but these have a different connotation. In line with the comments above on at-risk gambling, recreational gambling is defined by the absence of gambling problems and may include individuals who gamble frequently, intensively and/or lose a great deal of money. However, the deliberate exclusion of problem gambling from this group helps to foster assumptions that gambling in moderation has no ill-effects and may be beneficial [10], in spite of the lack of evidence on this topic.

**SEPARATE MEASUREMENT OF EXPOSURES AND HARMS**

Measures of problem gambling incorporate a rather diffuse range of adverse outcomes into assessments that the respondent attributes to gambling. For example, the Canadian Problem Gambling Index includes an item on health problems, including stress and anxiety, that are caused by gambling. Another item asks whether gambling has caused any financial problems for individuals or their household. There are equivalent assessments in the literature on problem drinking. However, in alcohol research there are also many studies that consider more specific measures of health and psychological harm as a function of alcohol consumption [7,11]. Developing a parallel literature in the gambling field would require measures of exposures and a range of harms that are conceptually and operationally distinct.

**PREDICTORS OF GAMBLING PARTICIPATION**

Although there is a wealth of evidence on risk and protective factors for problem gambling, [6,12], we do not know how much this reflects influences on level of gambling participation. Typically, the literature on factors associated with gambling participation distinguishes all gamblers from non-gamblers and does not usually examine predictors of frequency or intensity of gambling. In alcohol research, however, there are many studies reporting predictors of heavy alcohol consumption or other indices of risky use [13,14]. Separate measurement of participation and problems in gambling research can help to determine at what stage risk and protective factors exert their influence in the development of problem gambling.

**NATURAL HISTORY OF GAMBLING PARTICIPATION**

Recent studies suggest that problem gambling is more transient than has often been assumed [15–17]. However, these findings leave doubt regarding the extent to which individuals’ gambling frequency and intensity vary over time, rather than participation being stable while problems arising from it may change. Several studies have reported on continuity in gambling participation in young people but little is known about adult participation over time in the general population. By contrast, there is a substantial literature on continuity and change in levels of alcohol use, based on large prospective longitudinal investigations [18].

**CHALLENGES IN THE STUDY OF GAMBLING PARTICIPATION**

We acknowledge the scale of the task ahead in trying to meet these shortcomings and there are significant challenges to be faced in developing measures of gambling participation. Some of these issues have been tackled in research on alcohol use, with varying degrees of success, and some are more specific or substantially more important to gambling. Existing measures of gambling participation include frequency, duration of sessions, total time
spent (e.g. per week or month), number of activities, size of typical bets and total money spent (either in cash terms or as a proportion of income) or lost. Although such data are often collected, too few studies make full use of them. Researchers are often unsure of the validity of these indices as measures of diverse gambling activities and of their applicability across different population sub-groups. However, comparable issues have arisen in the development of alcohol consumption measures where there have been doubts as to the best way of utilizing information for different types of drinks (e.g. beers, wines, fortified drinks and spirits), how to combine information on typical quantity and frequency of drinking, how to cover both short- and long-term risky behaviour and how to deal with methodological threats to validity such as poor recollection and responses influenced by social desirability.

Research on alcohol use did not start with a presumption that the quantity of ethanol consumed (now operationalized as standard drinks) over a specified period of time was the only or most important index. While the use of standard drinks measures has been very important, this field: (i) still investigates differential correlates of different drinking measures [19,20]; (ii) acknowledges that the same amounts of alcohol mean different things for different people (notable women compared with men but also other groups such as young people and pregnant women); (iii) is concerned with the possible health consequences of ingredients other than ethanol [21]; and (iv) continues to be interested in such factors as the context in which drinking occurs [22]. The development of gambling participation measures will necessarily chart a different course, but past achievements in relation to alcohol consumption provide a motivation for setting about the task in a more concerted way.

The development of gambling participation measures will not occur in a vacuum, isolated from key theoretical and practical questions. The five research topics outlined earlier are likely to play a role in progress because each can contribute to establishing the validity and any deficiencies of different indices. For example, studies of the relationship between specific measures of participation (such as frequency or time spent) and contemporary or future harms can address the question of whether type of activity is an independent predictor of outcomes after adjustment for measures of level of participation. A null finding would indicate the utility of measures across (some) activities. Of course, there are inevitable constraints for some indices, including the difficulty that measures of time spent gambling cannot accommodate readily some activities such as the purchase of lottery tickets. These, however, are challenges to be met rather than avoided.

There are also lessons to be learned from constraints encountered in previous research on alcohol use. For example, many studies of problems associated with alcohol use have relied on information from participants regarding their own problems. This raises doubts about the validity of attribution, i.e. whether they perceive drinking as the cause of specific problems, and it begs the question as to whether other sources of information may differ in the assessment of problems or in their attribution of cause. Extending this point, research linking alcohol consumption to a range of health, psychological and social outcomes has focused similarly upon the individual concerned and has had less to say on the consequences for others around them. Both alcohol and gambling research should seek to embrace the secondary impacts of gambling, e.g. on partners, children and other family members, in a more comprehensive way.

**POSSIBLE BENEFITS FROM STUDYING LEVEL OF PARTICIPATION**

Wider utilization of measures of gambling participation could help address many of the constraints described above and may lead to other positive developments. This approach is not a panacea, and some resulting avenues of research may hit dead ends. It is difficult to anticipate the probable benefits from this strategy, but there are clues to be found in some recent studies. Currie et al. [23] reported risk curve analyses of data from the Canadian Community Health Survey 2002, where the likelihood of gambling-related harm increased steadily with frequency of gambling and with money spent on gambling. On the assumption of equal weighting for sensitivity and specificity, optimal cut-points for defining low-risk gambling were found to be: (i) gambling more than two to three times per month; (ii) spending more than $1000CAN per year on gambling; or (iii) spending more than 1% of gross income on gambling. When risky gambling is identified in this way, its prevalence (up to 30% of current gamblers) is far in excess of prevalence estimates of 1.5–4% for problem gambling [24]. A valuable extension of the approach taken in this study would be to consider other more specific measures of harm as outcomes and to incorporate a longitudinal component to prediction.

Measures of participation have also been used to assess post-treatment progress of pathological gamblers, suggesting gambling no more than once per month or 1.5 hours per month, and spending no more than 1.9% of monthly income on gambling as indicators of problem-free gambling [25].

In the area of natural history, we have not found any general population studies of adults that report correlations over time for gambling participation as well as problem gambling. However, there are longitudinal studies of adolescents that report on continuity in gambling behaviours [26,27]. One of these [27], a study of
more than 700 adolescent boys in Canada, reported a correlation of 0.57 between gambling frequency assessed at ages 16 and 17 years, compared with just 0.20 for gambling problems at the two ages. Further, gambling problems at time 2 were predicted more strongly by time 1 gambling frequency (0.36) than by time 1 problems (0.20). These results provide encouragement for including level of participation in prospective longitudinal studies.

**SUMMARY**

We have argued that gambling research has placed great emphasis on the measurement of problem gambling but that comparatively little progress has been made in the development of indices of participation. This does not imply that measures of problem gambling are flawed. Such instruments are valuable and increasingly sophisticated indicators of the construct they were designed to assess, and a rapid expansion in the research literature on gambling [28] is a testimony to their contribution. Difficulties arise, however, if we expect these measures to achieve things they were not designed for, including the assessment of individual exposures to gambling activity and the delineation of a broad range of health, psychological and social harms that could arise from gambling. The complementary use of indicators of participation is required, as seen in the literature on alcohol consumption, and we need conceptually and operationally distinct indices of exposures and harms.

**Declarations of interest**

None.

**Acknowledgements**

B.R. has been supported by NHMRC Research Fellowships no. 366758 and no.471429. P.B. has been supported by NHMRC Public Health (Australia) Fellowship no. 316970. The authors’ recent research on gambling has been funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs through its Social Policy Research Services Contract for the Family and Community Health Research Unit.

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