Pathological gambling recovery in the absence of abstinence

Wendy S. Slutske[1], Thomas M. Piasecki[1], Alex Blaszczynski[2] & Nicholas G. Martin[3]

University of Missouri, Columbia, MO, USA,[1] University of Sydney, Sydney, NSW, Australia[2] and Queensland Institute of Medical Research, Brisbane, QLD, Australia[3]

ABSTRACT

Aims To examine the role of abstinence from gambling versus controlled gambling in recovery from pathological gambling (PG) in a community-based survey. **Design** Individuals with a life-time history of PG identified in a community-based survey were divided into three groups based on their current levels of PG symptoms. These three groups were compared to each other on their past-year gambling involvement. **Setting** National general population twin survey conducted in Australia. **Participants** Overall, there were 4764 participants in the community-based survey (mean age 37.7 years, 57.2% women). Among these were 104 participants with a life-time history of PG; of the 104 with a life-time diagnosis of PG, 28 had a past-year diagnosis of PG, 32 had past-year problem gambling and 44 had no symptoms of PG in the past year ('recovery'). **Measurements** The measure of PG was based on the NODS (NORC DSM-IV Screen for Gambling Problems). Past-year participation in 11 different gambling activities was assessed, as well as the following composite indicators: any gambling, gambling versatility, the number of days and hours spent gambling and the proportion of household income spent on gambling. **Findings** Ninety per cent of those in the recovery group participated in some form of gambling in the past year. **Conclusions** In this general population survey, nearly all the PG recoveries were achieved in the absence of abstinence. Controlled gambling appears to be a popular road to recovery in the community.

Keywords Abstinence, Australia, community survey, controlled gambling, pathological gambling, recovery.

INTRODUCTION

Abstinence has been the only acknowledged treatment goal in most pathological gambling (PG) interventions [1]. For example, a popular form of treatment for PG, Gamblers Anonymous (GA), takes a very strong stance on the importance of complete abstinence from gambling for achieving recovery [2]. In treatment studies, abstinence from all forms of gambling has traditionally been required for the treatment to be considered a success [3–5], although this position has been challenged by demonstrating that some individuals who undergo treatment for PG are able to learn to continue to gamble without problems [1,3,6].

The demonstration of recovery from PG in the absence of abstinence ('controlled gambling') has typically been obtained in the context of PG treatment studies in which abstinence was the specified treatment goal. For example, in a 1-year PG treatment follow-up study, 15 of 45 (33%) individuals who were asymptomatic had participated in some gambling in the past 6 months [6]. More recently, studies of the efficacy of PG treatment with controlled gambling as a treatment goal also provide evidence of the viability of recovery from PG without abstinence [1].

Most recoveries from PG, however, are achieved without treatment [7,8]. More than 80% of PG recoveries were attained without treatment in recent United States and Australian national surveys [7,8]. Because those who seek treatment for PG are an unrepresentative sub-sample of individuals with PG, a community-based epidemiological survey that includes individuals who have achieved recovery naturally as well as with the assistance of treatment may provide the best evidence to inform the debate about whether recovery from PG must be accompanied by abstention from gambling.

There is limited information about the extent to which PG recovery in the community is associated with abstinence versus controlled gambling outcomes. The aim of the present study was to examine the role of abstinence from gambling in recovery from PG in a community-based survey. In a previous paper, Slutske *et al.* [8] identified 44 individuals from a national community-based survey who had a life-time history of PG but who were asymptomatic in the past year. The level of gambling involvement among these recovered individuals was compared to that of two other groups with a life-time history of PG who were symptomatic with PG or problem gambling in the past year.

METHODS

Participants

Participants for this study were 4764 members (mean age 37.7 years, 57.2% women) of the Australian Twin Registry (ATR) Cohort II [9], a general population sample of twin pairs. In 2004–07, a telephone interview containing a thorough assessment of gambling behaviors was conducted with ATR Cohort II members (individual response rate of 80.4%; see [9] for more details). It is not always recognized that general population surveys of twins can be useful for more than just answering questions about genetic and environmental underpinnings of behavior. In addition to being a sample of twins, this study was also designed to address basic epidemiological questions about gambling behavior.

Measures

All the measures for this study, including PG and gambling involvement, were obtained via a structured psychiatric telephone interview. Prior to the interview, participants were mailed a respondent booklet that was used to assist with some of the interview questions. The respondent booklet contained response options that participants could select.

Pathological gambling

The measure of PG was based on the NORC DSM-IV Screen for Gambling Problems (NODS) [10]. The life-time occurrence of and ages of onset and recency for each of the 10 DSM-IV [11] PG symptoms as well as periods of symptom clustering were assessed. The NODS DSM-IV diagnostic criteria were assessed for all participants who reported that they had ever gambled at least five times within a single 12-month period; the majority of participants, 77.5%, surpassed this gambling threshold. The life-time prevalence of DSM-IV PG in the overall study sample was 2.2% ($n = 104$). The test–retest reliability of the life-time diagnosis of PG was very good

(kappa = 0.67; Yule's Y = 0.79) based on a 3.4-month retest interview completed with 166 participants in this study [8]. The validity of DSM-IV PG diagnoses based on the NODS has been demonstrated in several studies— 82% of individuals diagnosed with life-time PG using the NODS [12] and 97% of individuals diagnosed with past-year PG using the NODS [13] also obtained a diagnosis of PG using the South Oaks Gambling Screen (SOGS) [14].

In the DSM-IV, a diagnosis of life-time PG requires that at least five of 10 symptoms are experienced, and there is no explicit requirement that the symptoms co-occur. None of the previous epidemiological surveys of DSM-IV PG have incorporated symptom co-occurrence ('clustering') as a part of the diagnosis of life-time PG [10,15–17]. Rather than rely on the assumption that multiple symptoms will tend to co-occur, we assessed directly whether a participant with more than one PG symptom had ever had a 12-month period of symptom co-occurrence. Most of the 104 individuals with a life-time history of DSM-IV PG (79%) also reported that they had experienced a 12-month period in which at least three symptoms of PG had co-occurred ('symptom clustering'; [8]).

Participants also were administered the SOGS [14]. The SOGS was not used for the primary aims of this paper, but a single SOGS item (no. 6) was used as an indicator of gambling-related impairment. Participants were asked: 'Do you feel that you have ever had a problem with your gambling?'. Those who responded 'yes' to this life-time question were asked the following past-year question: 'Do you feel that you have had a problem with your gambling in the last 12 months?'. This 'gambling problem recognition' question [8] was used as an alternate indicator of (low) level of impairment from gambling in the past year.

Gambling involvement

A thorough assessment of life-time and past-year gambling was conducted, including any involvement in 11 types of gambling (lottery, electronic gambling machines, instant scratch tickets, betting on horse or dog races, playing casino table games, keno, bingo, card games, betting on a sporting event, betting on games of skill and internet casino gambling). In addition to participation in each of the specific gambling activities, two composite indices of gambling were also examined: participation in any of the 11 activities, and the number of different gambling activities that were practiced ('gambling versatility').

Three indicators of past-year gambling involvement based on the amount of time and money spent on gambling were also assessed [18]. The number of days spent gambling in the past year was based on the response to the question: 'on how many days in total have you participated in any form of gambling in the last 12 months?',

with 14 response options (presented in the respondent booklet) ranging from 'never' to 'every day'. Because different forms of gambling vary in terms of the time commitment required, the number of days on which gambling occurred may not fully capture the amount of time spent on gambling. Therefore, we also derived an index of the number of hours spent on gambling in the past year. This was computed from the item 'in the last 12 months, on a typical day when you gambled, how much time would you spend on gambling?', with open-ended responses in hours or minutes recorded. The number of hours spent on a typical gambling day was multiplied by the number of days gambled in the past year to obtain the number of hours spent on gambling in the past year. The percentage of yearly income spent on gambling in the past year was computed from the item 'in the last 12 months, on a typical day when you gambled, how much money would you spend on gambling? (By money spent on gambling, I mean the total amount that you started out with at the beginning of the day minus the total amount that you ended up with at the end of the day)', with 10 response options (presented in the respondent booklet) ranging from 'less than $1' to '10 001 or more'. The number of dollars spent on a typical gambling day was multiplied by the number of days gambled in the past year to obtain the number of dollars spent on gambling (net losses) in the past year. This was then divided by the yearly household income reported in a different section of the interview to obtain the percentage of yearly income spent on gambling.

Participants were also asked about their gambling involvement during a period when they were spending more time gambling than they had during the last 12 months. These questions were identical to the questions about past-year gambling, except that the questions included the phrase 'during that period when you were gambling the most' rather than 'in the last 12 months'. For the purposes of this study, we focus on the number of days gambled and the number of hours gambled during the heaviest gambling period. Both these items were converted to a 1-year metric (i.e. number of days in a year, number of hours in a year), even though the heaviest gambling period may not have been of 1-year duration. This facilitated comparisons with the past-year gambling questions.

Data analysis

PG recovery was defined as a life-time history of DSM-IV PG without endorsement of any PG symptoms in the past 12 months—44 individuals fitted into this category. Individuals in this recovery group were compared to 28 individuals with a past-year diagnosis of PG and to 32 individuals with a life-time diagnosis of PG who had some gambling problems (one to four PG symptoms) within the past 12 months ('problem gambling'); all the individuals in these two groups had their onset of PG symptoms prior to the past year, and 58 of 60 had experienced at least five symptoms of PG prior to the past year.

It is not clear how long an individual must be symptom free to be considered recovered from PG. For treatment–outcome studies, a consensus of experts has suggested that a long-term follow-up of 2 years or more following completion of treatment is needed to establish that the treatment has been successful and that changes made in gambling involvement are stable [18]. By this benchmark, most of the individuals classified as recovered in the present study would be considered stable recoveries; the average number of years the individuals in the recovery group had been completely symptom-free was 4.7 (range = 1–11); 93% had been symptom free for 2 or more years (41 of 44) and 48% (21 of 44) had been symptom free for 5 or more years [8]. Only eight individuals in the recovery group had ever sought treatment for their gambling problems, therefore 36 (82%) would be considered natural recoveries [8].

Differences in past-year gambling involvement for the three life-time PG groups were examined using generalized least squares regression for continuous outcomes and logistic regression for binary outcomes. (Note that the 104 twin individuals included in these analyses were obtained from 102 different twin pairs. Therefore, treating these twin data as non-independent observations was unnecessary.) These same analytical techniques were also used to examine differences between the three life-time PG groups in demographic characteristics and level of life-time PG symptomatology (Table 1). Two of the life-time PG groups—those with past-year symptoms—were more likely to be male than the recovered group. This is because women were more likely to recover from PG than were men [8]. The three life-time PG groups differed in levels of life-time PG symptomatology (although the differences were not statistically significant). Comparisons of the three life-time PG groups and the corresponding estimated parameters (means and percentages) were adjusted for sex and levels of life-time PG symptomatology.

RESULTS

The past-year PG, past-year problem gambling and past-year recovery groups differed significantly in past-year gambling problem recognition ($\chi^2 = 25.13$, df = 2, $P < 0.0001$). Only 2% (one of 44) of individuals in the recovery group responded affirmatively to the question 'Do you feel that you have had a problem with your gambling in the last 12 months?' compared to 54% and 34% in the past-year PG and past-year problem gambling groups, respectively.

Table 1 Characteristics of three groups with a life-time history of pathological gambling identified from an Australian national survey.

Characteristic	PG symptom levels in the past year		
	Past year PG (5+ sxs)	Past year problems (1–4 sxs)	PG recovery (0 sxs)
	n = 28	n = 32	n = 44
Age (mean)	37.9[a]	37.8[a]	37.2[a]
Male (%)	71[a]	78[a]	57[b]
Married (%)	46[a]	59[a]	52[a]
Life-time PG symptoms (mean)	7.0[a]	6.4[a]	6.2[a]

PG: pathological gambling; sxs: symptoms. [a,b]estimates within rows with a different letter significantly differ at $P < 0.05$.

Table 2 Past year gambling involvement among three groups with a life-time history of pathological gambling identified from an Australian national survey.

Past year gambling involvement	PG symptom levels in the past year					
	Past year PG (5+ sxs)		Past year problems (1–4 sxs)		PG recovery (0 sxs)	
	n = 28		n = 32		n = 44	
	%		%		%	
Any gambling	100[a]		100[a]		90[a]	
Lottery	91[a]		94[a]		76[a]	
Scratch tickets	78[a]		69[a]		59[a]	
Electronic gaming machines	93[a]		78[a,b]		62[b]	
Horse or dog races	76[a]		69[a]		52[a]	
Casino table games	49[a]		52[a]		31[a]	
Keno at a club, hotel or casino	60[a]		37[a,b]		24[b]	
Bingo at a club or hall	26[a]		19[a]		8[a]	
Card games (not at a casino)	46[a]		5[b]		19[c]	
Betting on sporting event	31[a]		36[a]		16[a]	
Betting on games of skill	24[a]		12[a]		10[a]	
	Mean (SE)		Mean (SE)		Mean (SE)	
No. Different gambling activities	5.7[a]	(0.41)	4.9[b]	(0.38)	3.6[c]	(0.33)
No. Days gambled	175.9[a]	(15.83)	113.2[b]	(14.72)	54.1[c]	(12.68)
No. Hours gambled	438.2[a]	(53.55)	225.2[b]	(49.78)	54.6[c]	(42.88)
% Of yearly income spent on gambling	64.0[a]	(15.80)	54.7[a]	(14.62)	6.8[b]	(12.43)

Estimates are adjusted for the effects of sex and life-time DSM-IV PG symptoms. PG: pathological gambling; sxs: symptoms; SE: standard error; [a,b,c]estimates within rows with a different letter significantly differ at $P < 0.05$.

Ninety per cent of those in the recovery group participated in some form of gambling in the past year. On average, those in the recovery group participated in 3.6 different gambling activities, gambled on 54.1 days, spent 54.6 hours and 6.8% of their yearly household income on gambling in the past year. The following pattern was observed for the rates of any past-year involvement for most of the different gambling outcomes: PG group > problem gambling group > recovered group (see Table 2).

A more detailed picture of the frequency and intensity of gambling involvement in the PG recovery group is pre-sented in Table 3. The conclusions that can be drawn from Table 3 are: (i) other than lottery and scratch tickets, the most popular forms of gambling among the recovery group were electronic gaming machines ('pokies' in Australia), betting on horse or dog races and betting on sporting events; (ii) there was evidence of past-year desistance among the recovery group for every gambling activity; and (iii) the forms of gambling that appeared to decrease the most were those that were played in a casino, hall or club; that is, casino table games, keno and bingo. In addition, during the period when they were gambling the

Table 3 Life-time and past year gambling involvement among 44 individuals identified from an Australian national survey who had recovered[a] from pathological gambling.

Gambling activity	Life-time		Past year	
	Ever	More than 100 days	Ever	More than 10 days
	%	%	%	%
Lottery	93	39	77	48
Scratch tickets	95	18	59	30
Electronic gaming machines	95	36	61	27
Horse or dog races	77	11	50	9
Casino table games	75	2	30	5
Keno at a club, hotel or casino	70	2	20	2
Bingo at a club or hall	59	5	11	0
Card games (not at a casino)	50	5	18	2
Betting on sporting event	23	11	14	5
Betting on games of skill	20	2	9	2

[a]Pathological gambling recovery was defined as a life-time history of DSM-IV pathological gambling without endorsement of any pathological gambling symptoms in the past 12 months.

most, those in the recovery group gambled on 168.1 days/year and spent 455.6 hours/year on gambling, on average. A matched-pairs *t*-test indicated that this was significantly more frequent gambling than occurred during the past year (number of days: $t = 6.92$, df = 43, $P < 0.0001$; number of hours: $t = 5.94$, df = 43, $P < 0.0001$). That is, the past-year frequency of gambling in the recovery group represented a significant reduction from their heaviest gambling period.

Not surprisingly, given that 36 of the 44 individuals in the PG recovery group represented natural recoveries, a group composed solely of those 36 individuals who attained recovery without treatment was very similar to the full PG recovery group. Eighty-nine per cent of those in the natural recovery group participated in some form of gambling in the past year and, on average, had participated in 3.7 different gambling activities, gambled on 51.0 days, spent 48.1 hours and 6.7% of their yearly household income on gambling in the past year.

DISCUSSION

If abstention from gambling was required to be considered successfully 'recovered' from PG, only 10% of the individuals defined as recovered in the present study would have met this criterion, even though they were completely asymptomatic. Nearly all the individuals who had recovered from DSM-IV PG had participated in some gambling in the past year.

Cross-sectional comparisons of gambling involvement in the recovered group with the two other non-recovered groups (that is, the past-year PG and past-year problem gambling groups) suggests that although recovery from PG was not accompanied by a complete cessation of all gambling, it was probably accompanied by a substantial reduction in gambling involvement. Comparisons of past-year reports with retrospective reports of gambling involvement obtained from the recovered individuals for a previous period of heavier gambling were in accord with the cross-sectional group comparisons in showing that there was a substantial reduction in the frequency of gambling. These results are consistent with the possibility that some gambling may not be incompatible with recovery from PG. If reducing gambling rather than abstaining from gambling was a treatment goal available to individuals with gambling problems, it is possible that more individuals would seek treatment and the rate of treatment-seeking among individuals with PG would be higher [1].

Similar arguments have been made for the treatment of other addictive disorders. Alcoholism recovery in the absence of abstinence has been the focus of research and (sometimes heated) debate [19,20] for more than half a century [21] because it was recognized that some individuals will not accept abstinence as a treatment goal [22]. There are now a number of empirically supported alcoholism treatments with moderation drinking as a goal [21,23]. Even when complete abstinence might be best for a given patient, Miller & Page [24] suggested that offering a 'warm turkey' approach, that is, to offer a trial period of treatment with controlled drinking as the goal, might work for those who are reluctant to completely abstain from drinking. In the end, the controlled drinking goal may eventually evolve into an abstinence goal ('cold turkey') if controlled drinking is not attainable. A similar strategy has been proposed for smoking cessation among smokers who are unmotivated to enter treatment and to quit smoking abruptly [25,26]. Many of these smokers, when enrolled in a 'reduced smoking' treatment program, are eventually able to achieve abstinence when they are allowed to reduce their smoking more gradually [25,26].

For some individuals faced with overcoming PG, 'warm turkey' may be the best approach for achieving recovery, with or without abstinence. For example, over the course of a 12-week controlled-gambling PG treatment program, Ladouceur *et al.* [1] found that only a minority of patients (34%) maintained the goal of controlled gambling throughout the entire course of treatment and that the majority of participants shifted to an abstinence goal at least once; by the end of the 12 weeks of treatment, 39% of the patients were pursuing an abstinence goal. Ladouceur *et al.* [1] cited evidence supporting the idea that some individuals choose an initial goal of

controlled gambling with the intention of eventually transitioning into an abstinence goal [27].

Limitations

There are limits to studying recovery from PG within the context of a cross-sectional epidemiological survey. Recovery could be studied more effectively within the context of a longitudinal study in which participants were followed before, during and after developing PG disorder, and the assessments obtained concurrently, rather than based on retrospective reports. Such a longitudinal study could collect more fine-grained information about the precipitating factors that prompted recovery, the methods that were used to achieve recovery and the factors underlying the maintenance of recovery. Long-term follow-ups could confirm that individuals classified as 'recovered' had achieved stable long-term recoveries. For example, although most of the recovered individuals in this study had been symptom-free for a number of years, it is still possible that individuals who were classified as 'recovered' may actually be in remission and eventually relapse to PG.

Studying PG recovery in a cross-sectional epidemiological survey of the general population also has a number of strengths: it yields results that are generalizable [28], allows one to estimate the proportion of affected individuals who recover with and without abstaining from gambling, and is probably the method that makes the fewest assumptions about who recovers and how recovery occurs. In a study of natural recovery from alcohol dependence based on two samples of individuals that were either identified from a community-based survey or from media solicitations of individuals who had recovered from alcohol dependence without treatment, Rumpf *et al.* [29] obtained estimates of past-year abstinence of 15.6% versus 83.5%, suggesting that media-recruitment of individuals who have recovered from alcohol dependence may lead to inaccurate estimates of the likelihood of recovery in the absence of abstinence from alcohol in the community. The same may be true for estimating the likelihood of recovering from PG in the absence of abstinence from gambling in the community.

Despite limitations, the results of this study were relatively clear. In a general population survey, nearly all the PG recoveries were achieved in the absence of abstinence. Those who had recovered from PG were still gambling, but were gambling less than those who were currently symptomatic. In sum, controlled gambling appears to be a popular road to recovery from PG in the community.

Declarations of interest

None.

References

1. Ladouceur R., Lachance S., Fournier P. Is control a viable goal in the treatment of pathological gambling? *Behav Res Ther* 2009; **47**: 189–97.
2. Ferentzy P., Skinner W., Antze P. Recovery in Gamblers Anonymous. *J Gambl Issues* 2006; **17**: http://jgi.camh.net/doi/full/10.4309/jgi.2006.17.6 (accessed 9 July 2010). Archived by Webcite at http://www.webcitation.org/5r6B5Hs0x).
3. Blaszczynski A., McConaghy N., Frankova A. Control versus abstinence in the treatment of pathological gambling: a two to nine year follow-up. *Br J Addict* 1991; **86**: 299–306.
4. Ladouceur R. Controlled gambling for pathological gamblers. *J Gambl Stud* 2005; **21**: 51–8.
5. Petry N. M. *Pathological Gambling: Etiology, Comorbidity, and Treatment*. Washington, DC: American Psychological Association; 2005.
6. Weinstock J., Ledgerwood D. M., Petry N. M. Association between posttreatment gambling behavior and harm in pathological gamblers. *Psychol Addict Behav* 2007; **21**: 185–93.
7. Slutske W. S. Natural recovery and treatment-seeking in pathological gambling: results of two US national surveys. *Am J Psychiatry* 2006; **163**: 297–302.
8. Slutske W. S., Blaszczynski A., Martin N. G. Sex differences in the rates of recovery, treatment-seeking, and natural recovery in pathological gambling: results from an Australian community-based twin survey. *Twin Res Hum Genet* 2009; **12**: 425–32.
9. Slutske W. S., Meier M. H., Zhu G., Statham D. J., Blaszczynski A., Martin N. G. The Australian twin study of gambling (OZ-GAM): rationale, sample description, predictors of participation, and a first look at sources of individual differences in gambling involvement. *Twin Res Hum Genet* 2009; **12**: 63–78.
10. Gerstein D., Volberg R., Toce M., Harwood H., Palmer A., Johnson R. *et al. Gambling Impact and Behavior Study: Report to the National Gambling Impact Study Commission*. New York: Christiansen/Cummings Associates; 1999.
11. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders: DSM-IV (edn 4)*. Washington, DC: American Psychiatric Association; 1994.
12. Wickwire E. M., Burke R. S., Brown S. A., Parker J. D., Ryan K. M. Psychometric evaluation of the National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS). *Am J Addict* 2008; **17**: 392–5.
13. Hodgins D. Using the NORC DSM Screen for Gambling Problems as an outcome measure for pathological gambling: psychometric evaluation. *Addict Behav* 2004; **29**: 1685–90.
14. Lesieur H. R., Blume S. B. The South Oaks Gambling Screen (SOGS): a new instrument for the identification of pathological gamblers. *Am J Psychiatry* 1987; **144**: 1184–8.
15. Kessler R. C., Hwang I., LaBrie R., Petukhova M., Sampson N. A., Winters K. C. *et al.* DSM-IV pathological gambling in the National Comorbidity Survey Replication. *Psychol Med* 2008; **38**: 1351–60.
16. Petry N. M., Stinson F. S., Grant B. F. Comorbidity of DSM-IV pathological gambling and other psychiatric disorders:

results from the National Epidemiologic Survey on Alcohol and Related Conditions. *J Clin Psychiatry* 2005; **66**: 564–74.

17. Welte J., Barnes G., Wieczorek W., Tidwell M., Parker J. 2001). Alcohol and gambling pathology among U.S. adults: prevalence, demographic patterns, and comorbidity. *J Stud Alcohol* 2001; **62**: 706–12.

18. Walker M., Toneatto T., Potenza M. N., Petry N., Ladouceur R., Hodgins D. C. *et al.* A framework for reporting outcomes in problem gambling treatment research: the Banff, Alberta Consensus. *Addiction* 2006; **101**: 504–11.

19. Marlatt G. A. The controlled-drinking controversy: a commentary. *Am Psychol* 1993; **38**: 1097–110.

20. Sobell M. B., Sobell L. C. Controlled drinking after 25 years: how important was the great debate? *Addiction* 1995; **90**: 1149–53.

21. Saladin M. E., Santa Ana E. J. Controlled drinking: more than just a controversy. *Curr Opin Psychiatry* 2004; **17**: 175–87.

22. Wilbourne P. L., Miller W. R. Treatment for alcoholism: older and wiser? *Alcohol Treat Q* 2002; **20**: 41–59.

23. Hester R. K., Miller W. R. *Handbook of Alcoholism Treatment Approaches*, 3rd edn. Boston, MA: Allyn and Bacon; 2003.

24. Miller W. R., Page A. C. Warm turkey: other routes to abstinence. *J Subst Abuse Treat* 1991; **8**: 227–334.

25. Fagerström K. O. Can reduced smoking be a way for smokers not interested in quitting to actually quit? *Respiration* 2005; **72**: 216–20.

26. Hughes J. R., Carpenter M. J. Does smoking reduction increase future cessation and decrease disease risk? A qualitative review. *Nicotine Tob Res* 2006; **8**: 739–49.

27. Dowling N., Smith D. Treatment goal selection for female pathological gambling: a comparison of abstinence and controlled gambling. *J Gambl Stud* 2007; **23**: 335–45.

28. Rumpf H., Bischof G., John U. Remission without formal help: new directions in studies using survey data. In: Klingemann H., Sobell L. C., editors. *Promoting Self-Change from Addictive Behaviors: Practical Implications for Policy, Prevention, and Treatment*, New York: Springer; 2007, p. 73–85.

29. Rumpf H., Bischof G., Hapke U., Meyer C., John U. Studies on natural recovery from alcohol dependence: sample selection bias by media solicitation? *Addiction* 2000; **95**: 765–75.