EMOTION, IMPLICIT DECISION MAKING AND PERSISTENCE AT GAMING

Sir—In his commentary on our recent paper (Hills et al. 2001), Coventry (2001) endorsed the need to look much more closely at the role of emotion in gambling, and emphasized the importance of the relationship between emotion and decision making. We, in turn, endorse this suggestion, particularly with respect to implicit (largely unconscious) decision-making processes. These have been neglected in favour of a view of decision making as a conscious, deliberate and rational process. We have a number of comments in response to Coventry (2001).

The effect of mood on gaming persistence in our study is arguably most notable for what happened with non-regular gamblers. Negative mood was found to have an inhibitory effect on gaming persistence for non-regular gamblers, but this inhibition was not observed with regular gamblers. Thus, our findings do not so much contradict the view that regular gamblers gamble when they are in a depressed mood state; rather, they suggest that regular gamblers will gamble whatever mood they are in, and that somehow depressed mood has lost its otherwise inhibitory effect. This can explain why inevitably one will find a higher incidence of depressed mood among venue-derived samples of regular versus non-regular gamblers. Our finding that mood after play for regular gamblers was correlated with winnings suggests a compounding of the problem. Losing regular gamblers were relatively unhappy, and this might otherwise deter persistence, but not if unhappiness has lost its inhibitory effect. In addition, although not addressed in our study, once this inhibitory effect is lost regular players may then learn that gaming provides escape from unhappiness.

We also questioned the tendency in prior literature to equate high arousal with excitement, and spoke to the need to always interpret arousal in tandem with hedonic tone. We would go further. Gambling for high arousal positive hedonic tone, namely excitement, is very likely to be a common feature of the gambling experience, but is it a simple process that remains constant over a gambling episode? The propositions of reversal theory (Apter 1989) suggest tantalizing possibilities. The pursuit of excitement may be typical of most gambling experiences, with excitement maintained by the anticipation of winning, and realized by the experience of winning. However, does this excitement reverse to the high arousal negative hedonic tone of anxiety with continuing losses, so that now the goal is to achieve a more relaxed non-anxious state that can only come from a win to negate the losses? This is speculation, but research that tracks both arousal and hedonic tone over the course of gambling episodes may offer insights into hitherto unsuspected processes.

Finally, we endorse Coventry’s (2001) suggestion that there is merit in pursuing other theoretical perspectives on the relationship between emotion and decision making, in particular Damasio’s (1994) somatic marker hypothesis. The assertion by Stacy and colleagues (e.g. Stacy & Ames 2000) that implicit memory associations are important in maintaining addictive behaviours may also be fruitful. Using techniques to access implicit memory, these researchers have shown that alcohol and drug abuse are characterized by automatic associations of positive outcomes (e.g. relaxed mood) with drug-use behaviours. Such associations are learned through past experiences, but are not known consciously by the actor, and so cannot be accessed by introspection or self-report measures. Stacy and colleagues question the rational view of decision making which assumes people consciously weigh pros and cons, all of which are equally accessible from memory. Instead, they invoke the spreading activation model of memory to suggest that closely associated concepts in memory such as have fun–drink alcohol (or feel good–gamble) will be most highly accessible and will automatically come to mind to direct behavioural ‘decisions’.

We also believe that recent research progress in gambling, as illustrated by the studies of Coventry and colleagues and ours here in Australia, confirms the possibility that in the absence of a psychoactive agent, research using regular gamblers who experience impaired control as participants provides a unique window into the psychological processes that underpin addictive behaviour.
A MECHANISM OF CHANGE

ROLE OF ALCOHOL EXPECTANCIES AS A MECHANISM OF CHANGE

Sir—Recently, a critical review of expectancy research in Addiction (Jones, Corbin & Fromme 2001a) has led to further discussion concerning the causal role of alcohol expectancies in predicting alcohol use and the current status of the ‘expectancy challenge’ method (Jones et al. 2001a; Del Boca & Darkes 2002; Jones et al. 2001b). It has been my impression that some critical distinctions were not addressed in this discussion.

Jones et al. (2001a) concluded that replications of the successful expectancy challenge studies of Darkes and Goldman were unsuccessful. Del Boca & Darkes (2002) pointed out an important distinction between challenge studies: those with an experiential disconfirmation of expectancies and ‘information-only’ challenges. This distinction was dismissed by Jones et al. (2001b), who cited a study in which expectancies were experientially challenged and no association was found between changes in expectancies and changes in drinking (Fromme, Kivlahan & Marlatt 1986). However, this study is difficult to interpret for two reasons: first, the challenge was part of an eight-sessions multi-component programme, which makes it impossible to assess the role of the single-challenge session. Secondly, expectancies were measured with the alcohol effects questionnaire, which associates poorly with alcohol use in contrast to other scales (Leigh 1989).

There is a second critical distinction on which expectancy challenges should be distinguished: the number of sessions used. All studies cited in Jones et al. (2001a) as negative evidence for the efficacy of a challenge used a single session (‘information only’ or experiential). More recently, two studies using the original multi-session experiential challenge, found significantly reduced positive expectancies and alcohol use [but in only one gender: in men only in Dunn et al. (2000), and in women only in Wiers & Kummeling (2001)]. Single-session challenges were generally less successful, although trends in the expected direction were found, which could indicate a similar though smaller effect.

Future expectancy challenge research should address a number of practical issues, such as the moderating role of gender, the effectiveness of separate-gender versus mixed-gender groups, the number of sessions needed, the effects of combinations with other prevention methods, etc. In addition, future studies should address the theoretical issue raised by Jones et al. (2001a) and demonstrate convincingly that a reduction of positive expectancies causes a reduction in subsequent drinking. Before these necessary further studies are performed, it seems premature to use existing expectancy challenge studies to either demonstrate or dismiss the causal role of expectancies in changes in alcohol use.

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empty, the glass still does not satisfactorily quench the thirst for knowledge on alcohol expectancies as a mechanism of change. *Addiction*, 96, 1672–1674.

**POTENTIAL CONFLICT OF INTEREST IN GAMBLING RESEARCH**

Sir—Recent correspondence in *Addiction* on funding and conflicts of interest has made me reflect on the state of gambling research in the UK and has got me worried about my own position. Readers are probably aware that the amount of research on gambling and gambling problems is tiny in comparison with that on alcohol, tobacco and other drugs, and that the provision of funded services for problem gambling is negligible. The first British Gambling Prevalence Survey (BGPS) (Sproston, Erens & Orford 2000) estimated the 1 year adult prevalence of problem gambling in Britain to be in the region of 0.7%, or around a third of a million people. The prevalence among adolescents may be even higher (Fisher 1999). These figures put the scale of the problem almost within the same ballpark as that of illicit drug use in the UK (Frischer et al. 2001). Yet virtually no health authority takes any responsibility for responding to such problems.

It is against that background that the present state of funding for gambling research and treatment needs to be considered. The one non-statutory body in the field, GamCare, which operates a national information service as well as a telephone helpline and two residential projects for people with gambling problems, is substantially funded by the gambling industry. It plays a vital role in a neglected field. As someone with a long-standing interest in problem gambling as a form of addiction (Orford 2001a, 2001b), I was approached 3 years ago by the National Centre for Social Research (NatCen) asking if I would provide the ‘academic link’ for the BGPS sponsored by GamCare. In my enthusiasm I did not enquire too closely about funding, but quickly discovered that the gambling industry was heavily involved in the survey’s funding, and that its representatives were in a majority on the project steering committee. I received a fee from NatCen (which went into my university research ‘slush fund’, which has since been frozen by the university, which claims to be a parlous financial state – but that’s another story), and contributed to a report at the end of the day that came out under the NatCen imprint and was delivered to GamCare. My experience of the steering committee left me in no doubt that industry representatives would in those circumstances argue for methods and procedures that served their interests. For example, because there was some disagreement in the literature about where the threshold was to be drawn between problem gambling and non-problem gambling in terms of scores on screening instruments, there was lively discussion on that point and certain industry representatives argued for placing the threshold higher than I would have advised. I believe expert opinion prevailed in that case, but there was also lengthy discussion about how to define gambling ‘expenditure’ (a very tricky matter in the case of gambling), and I think we may have been unduly influenced in that case.

Without some industry support, it is unlikely that such an important study would have taken place when it did. Since then, the Gambling Review Body was asked by the Home Office to review the gambling industry and its social impact, and to make recommendations about changes to gambling regulations; it subse-quentely reported to the Department of Culture, Media and Sport in July 2001 (a clever sleight of hand on the Government’s part to move the regulation of gambling from one department to another without any public debate). The GRB report, among its many recommendations, most of them in a deregulating, liberalizing direction, noted the paucity of research on problem gambling and the astonishing lack of treatment for it. To put that right, the mechanism they recommended was a Gambling Trust voluntarily funded by the gambling industry to the tune of not less than £3 million a year for at least 3 years in the first instance. It would allocate funding for research and treatment and should have a governing body that included representation from the industry, problem gambling service providers, medical/scientific funding councils and the national gambling regulating authority. The proposal would thus institutionalize industry funding and ensure that members of the British gambling research community would be subjected to a conflict of interest.

I offer the above for readers’ information and interest, but any advice readers can give on the ethical dilemma created by this state of affairs would be welcome.

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**Declaration**

I acted as academic link, for which my university received a fee, to a national survey research organization who
carried out a national Gambling Prevalence Survey and reported to a national non-statutory organization. The survey organization was paid for its work by a consortium consisting of government departments (the Home Office, the Department of Culture, Media and Sport), quasi-autonomous non-government organizations (the National Lottery Commission, the Gaming Board for Great Britain, the British Horseracing Board, the Tote, the Horserace Betting Levy Board), organizations representing the gambling industry or leisure industries (the Bingo Association, the British Casino Association, the Brewers’ and Licensed Retail Association, the British and Amusement Catering Trades Association, the Betting Offices Licensees Association, the National Bingo Game Association) and individual gambling industry companies (Camelot, Rank Leisure Gaming Sector, Technical Casino Services, London Clubs International, Ladbrokes Gaming Division, William Hill, Corals, Stakis Casinos).

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### SYPHILIS INFECTION AMONG DRUG ADDICTS IN WESTERN GERMANY

Sir—in a letter to this journal, Lugobini et al. (2002) reported on syphilis infection among heroin addicts in Verona, Italy. Over 6 years, they investigated a cohort of 486 addicts by recurrent Treponema pallidum haemagglutination (TPHA) tests. None of 2609 TPHA tests was positive. This result was explained by the abandoning of prostitution by Italian drug addicts, who were replaced by foreign-born sexual workers.

During 2000–2001, our study was carried out in eight detoxification wards for drug addicts in the federal state of North Rhine-Westphalia in Germany. Each patient had a TPHA test at admission. In case of a positive TPHA test, an IgM test searching for current infection was carried out. Patients were asked about sexual risk behaviour, and about infections with syphilis, HIV, hepatitis B (HBV) and C (HCV) or gonorrhoea. Due to different resources, the investigation periods differed between the wards.

In total, 1223 drug addicts with an average age of 30.1 years (SD 7.1) were investigated; 951 were male (77.8%) and 272 female (22.2%). Most patients (97%) were opiate addicts. At admission, 425 patients (34.8%) were currently in methadone maintenance treatment (MMT). Nine hundred and ninety-one patients (81.6%) were born in Germany.

TPHA tests were carried out in 1186 patients (97%). The reasons for omitting the test were recurrent admission, stay in the hospital of less than 24 hours and organizational mistakes. Thirty-nine (3.3%) out of 1186 TPHA tests were positive (female \(n = 22\); male \(n = 17\)). Thirty-two (82%) of the positive cases were natives of Germany; seven (18%) were immigrants. Eighteen (female \(n = 16\); male \(n = 2\)) out of 39 TPHA-positive persons (46.2%) reported being currently active prostitutes. Two men not involved in prostitution reported having sex frequently with casual partners. In seven (18%) out of 39 TPHA-positive patients, the specific IgM test was also positive, indicating current syphilis infection. Three out of four IgM-positive females reported current prostitution, but none of the three IgM-positive males. One male reported promiscuous sexual behaviour. Six out of seven IgM-positive patients had never been in MMT. The prevalence of infections as reported by the patients were 65.4% for HCV, 26.9% for HBV, 2.3% for HIV and 2.4% for gonorrhoea.

In this study, the prevalence of syphilis infection (TPHA-positive) in drug addicts was 3.3%; the rate of current syphilis infection (IgM-positive) was 0.6%. These data are similar to those from Gourevitch et al. (1996), who investigated drug addicts in MMT in New York. The first, but only partial, explanation for the dissimilarities between the Italian and the German data is obviously the rate of prostitution. In our sample, 153 out of 1223 patients (12.5%) were current or former prostitutes. Only 15 out of 225 (6.7%) immigrants were prostitutes.

The second explanation could be different recruitment. Follow-up of drug addicts over years, as in the Italian study, usually requires patients in long-term contact with the helping system. Such patients might have a lower risk of syphilis infection. In our study, the majority of cases were currently in no addiction treatment. Moreover, spread of syphilis infection is usually limited locally and in time. Therefore, prevalence rates for a region or a country can only cautiously be based on the results of only one centre. In our study, syphilis prevalence in the centres ranged between 0% and 8.9%. 

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