

Running Head: URGES AND REPORTS OF GAMBLING WINS

An Examination of the Cue-Reactivity of Reports of Gambling Wins

Christopher Mushquash

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Department of Psychology

Lakehead University

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Supervisor: Dr. John Jamieson

Second Reader: Dr. Dwight Mazmanian

Internal Examiner: Dr. Brian O'Connor

External Examiner: Dr. Sherry Stewart



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Abstract

The present study explored the cue-reactivity associated with reports of gambling wins. A 61-item questionnaire administered via the Internet collected information on gambling behaviours, effects of reports of large gambling wins, and thoughts that might underlie either the activation or the inhibition of gambling behaviour in response to these reports. The sample consisted of 46 females and 135 males (one individual not indicating gender) for a total of 182 respondents, with mean age of 32.3 years. Reports of wins from friends or relatives and those that were read, elicited significantly stronger urges to gamble than stories of wins on television. Gamblers were most likely to act on urges to gamble because of emotional reasons such as, "I just feel the urge to gamble" and "I really want to win a similar amount". Finally, individuals who exhibit pathological gambling behaviours were more susceptible to feeling urges after hearing about the reports of other people's wins and were more likely to report acting on these urges.

An Examination of the Cue-Reactivity of Reports of Gambling Wins

Gambling is increasingly becoming the pastime of choice for many people, possibly because of the increased availability of gambling opportunities. In Canada, gambling is a provincially regulated and controlled industry that has continued to steadily grow throughout the 1990s (Marshall, 2000). In particular, casino gambling surpassed video lottery terminals in 1997 and lotteries in 1998, becoming the largest generator of gambling revenues (Marshall, 2000). With the increase in numbers of people gambling, there has been an increase in the number of people who have gambling problems. In Ontario, 3.8% or about 340,000 people report having either moderate (3.1%) or severe (0.7%) gambling problems (Wiebe, Single, & Falkowski-Ham, 2001). As such, there is a need to continue to study gambling to examine factors that sustain an individual's problem gambling behaviour or conversely, factors that allow individuals to continue gambling without problems.

Addiction and Gambling:

The *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision (American Psychiatric Association, 2000) criteria for pathological gambling and substance dependence parallel each other in a number of fundamental ways. For example, pathological gambling is characterized as a “persistent and recurrent maladaptive gambling behaviour that disrupts personal, family, or vocational pursuits” (p. 671). Similarly, substance dependence is defined as a “maladaptive pattern of substance use, leading to clinically significant impairment or distress...” (p. 197). Among the similar diagnostic criteria between each disorder are such symptoms as: tolerance, withdrawal, increasing amounts, a persistent desire, and

unsuccessful attempts to cut down or control abuse.

Pathological gamblers have been shown to increase the amounts of money they wager in order to experience the same levels of arousal or excitement previously experienced at a lower level of wagering (Wray & Dickerson, 1981), just as substance dependent individuals increase the amounts of substances they consume (Griffiths, 1993). As well, between 30-40% of pathological gamblers report a mild withdrawal syndrome when they cease gambling, or are unable to gamble (Wray & Dickerson, 1981). Among the symptoms of gambling withdrawal syndrome are irritability, psychosomatic complaints, concentration difficulties, and psychomotor agitation (Wray & Dickerson, 1981). Pathological gamblers can give up (or seriously jeopardize) family, social, and work responsibilities in order to gamble, just as substance abusers do (Petry, 2002). Also, up to 60% of pathological gamblers engage in activities that are illegal in order to support their gambling activity (Rosenthal & Lorenz, 1992). Just like substance abusers, pathological gamblers continue to engage in the harmful activity despite consequences that are adverse (Lesieur & Rosenthal, 1991).

Pathological gamblers show evidence of many of the symptoms associated with substance dependence and experienced by substance users throughout the course of their disorder. Like other addictions, the essential element of addiction to gambling is a complete absorption in the activity and pursuit of it, in a compulsive manner, which leads to extremely negative life outcomes (Peele, 2002). Thus gambling has been called the addiction without the drug or a non-chemical addictive disorder (Blanco et al., 2001; Potenza et al., 2001) and is considered by many to be

the prototypical behavioural addiction. Until recently, the term addiction has been reserved for, and limited almost exclusively to substance using behaviour patterns that evidence adverse consequences (Shaffer & Kidman, 2003). However, despite the absence of a psychoactive agent, there have been no serious challenges to the inclusion of gambling amongst the addictive behaviours (Dickerson, 2003).

Substance abuse disorders and pathological gambling often co-occur, with high comorbidity rates. For example Kausch (2003) found that 66.4% of pathological gamblers admitted to a residential treatment program for gambling had a lifetime history of substance abuse or dependence. Also, in the year immediately preceding admission to the treatment program, 58.1% of those with a history of substance abuse were actively using substances (Kausch, 2003). Petry (2002) described a number of studies that evaluated the comorbidity of substance abuse and gambling. One study found that 28% of pathological gamblers were alcohol dependent compared to only 1.2% among non-pathological gamblers (Welte, Barnes, Wiczorek, Tidwell, & Parker, 2001). Additional studies found that among treatment seeking pathological gamblers, 30-50% suffered from a substance abuse disorder (Lesieur, Blume, & Zoppa, 1986; Ramirez, McCormick, Russo, & Taber, 1983). Gamblers have been shown to have approximately seven times the rate of alcohol or drug dependence when compared to recreational gamblers or non-gamblers (The National Opinion Research Center, 1999). High rates of gambling have also been found among substance abusers seeking treatment (Petry, 2002). Studies have found comorbidity rates of 9-30% of treatment seeking substance abusers having gambling disorders (Feigelman, Kleinman, Lesieur, Millman, & Lesser, 1995; Hall et al., 2000; Petry,

2000; Steinberg, Kosten, & Rounsaville, 1991). The comorbidity of pathological gambling and substance abuse points to a link between the two disorders (Spunt, Dupont, Lesieur, Liberty, & Hunt, 1998). Despite the similarities, an important distinction is the lack of ingestion of a physical substance. This makes it difficult for objective verification of gambling abstinence because physiological detection is not possible (Petry, 2002).

Like the physiological arousal that occurs when an individual uses a substance, gambling can produce physiological arousal when engaged in a gambling task. High frequency gamblers (Leary & Dickerson, 1985), as well as problem gamblers (Sharpe, Tarrier, Schotte, & Spence, 1995) exhibit significant increases in arousal as indexed by heart rate, skin conductance response, and subjective measures of arousal while engaged in a gambling task. Similar physiological responses occur not only when gamblers are engaged in a gambling related task, but also when they are exposed to gambling related cues (Freidenberg, Blanchard, Wulfert, & Malta, 2002). This finding demonstrates that there is a cue-reactivity associated with gambling related stimuli, which can act to elicit physiological arousal.

Cue-Reactivity and Cue-Exposure Treatment:

Cue-reactivity refers to a degree of arousal or craving elicited by a related cue that provokes an urge to partake in a particular behaviour, be it gambling or engaging in use of a substance. Exposure to certain objects, emotions, or environments that have been associated with a substance can trigger cravings (Litt & Cooney, 1999). For example, exposing a smoker to smoking related cues through video presentation can reliably produce increased craving (Shadel, Niaura, & Abrams, 2001). Cue-

reactivity has been examined or utilized within the areas of smoking (Rees, 1997; Shadel et al., 2001), alcohol-dependence (Streeter, Gulliver, Baker, Meyer, Ciraulo, & Renshaw, 2002), cocaine (Weiss et al., 2001), and opiate addiction (Dawe et al., 1993; Franken, de Haan, van der Meer, Haffmans, & Hendricks, 1999).

A number of techniques have been developed in order to induce craving in the laboratory setting. For example, craving for alcohol has been induced in the laboratory by exposing individuals to alcoholic beverages or visual representations of alcoholic beverages, manipulating individual's mood states, and controlling environmental settings (Litt & Cooney, 1999). Success in inducing alcohol craving in the laboratory has largely been inconsistent (Litt & Cooney, 1999), but more effective means of inducing craving using exposure to alcoholic beverages include offering the participant their choice of beverage (Laberg, 1990), or allowing the participant to pour and mix the drink in their usual way (Litt & Cooney, 1999).

Petry (2002) reviewed a variety of psychotherapies (cognitive, cognitive-behavioural, and motivational) and pharmacotherapies (withdrawal reduction, maintenance drugs, blockade agents, and concomitant disorder medication) for pathological gambling. Unfortunately, only a few randomized clinical trials have been conducted. Psychotherapies tend to reduce problem behaviour although there is little support for differential effects of therapies (Petry, 2002). Thus, it appears that some treatment is better than no treatment (Babor, 1994; Bien, Miller, & Tonigan, 1993). Toneatto and Ladouceur (2003) concluded that there was "...very little firm scientific knowledge about what constitutes effective treatment for pathological gambling" (p. 291), but indicated that the best conducted studies (Echeburua, Baez, &

Fernandez-Montalvo, 1996; Echeburua, Fernandez-Montalvo, & Baez, 2000; Sylvain, Ladouceur, & Bosivert, 1997; Hodgins, Currie, & el-Guebaly, 2001) suggest that cognitive-behavioural spectrum interventions will be the most effective (Toneatto & Ladoucer, 2003). For pharmacotherapy, because there is no physical dependence or physiological dependence, medications for withdrawal or maintenance programs have either not been studied or are unlikely to be useful for pathological gambling (Petry, 2002). However, treatments that utilize blockade agents and medications for concomitant disorders have shown positive effects in treatment for pathological gambling.

One particular psychotherapy treatment that has been investigated within the areas of smoking addiction, alcohol addiction, opiate addiction, and eating disorders is cue-exposure treatment (Havermans & Jansen, 2003). This treatment exposes individuals to cues that evoke conditioned responses such as changes in arousal, preparatory physiological compensatory adjustments, and cravings (Symes & Nicki, 1997). The purpose of this exposure is to allow the client to practice using coping skills in response to urges in a controlled treatment setting (Monti & Rohsenow, 1999). Cue-exposure treatment exposes an individual to environmental cues that are known to produce reactions within that individual. This treatment is designed to allow clients the opportunity to practice various coping skills in the face of real temptations to resume whatever behaviour they are being treated for. It is hypothesized that as a result of coping-skills practice, individuals will feel less overwhelmed by urge-provoking situations and will be less likely to relapse after treatment (Monti & Rohsenow, 1999).

Monti and Rohsenow (1999) discuss the conceptual basis by which cue-exposure treatment likely acts. Learning theory and social learning theory models have been used to explain the relationship between cues and the reactivity towards them. Classical learning theory suggests that an individual can associate environmental cues from past experiences with a substance (in their example, alcohol), which in turn elicits conditioned responses upon subsequent exposures. For example, the enjoyable subjective effects of one's own gambling experience may come to be conditioned to the sights and sounds of a casino environment. Although several hypotheses exist to account for the effect (i.e., conditioned withdrawal, conditioned compensatory response, or conditioned appetitive response), the current evidence suggests that cue-induced responses most likely resemble conditioned appetitive responses (Niaura et al., 1988).

Social learning theory suggests that the presence of cues may increase the risk of relapse by increasing the relevance (salience) of the positive effects of, for example, alcohol to the drinker, thus making them want to consume more alcohol (Monti & Rohsenow, 1999). This theory also suggests that cues can trigger cognitive and neurochemical reactions that may affect an individual's ability to use coping skills as well as that person's ability to employ such skills in a tempting situation (Monti et al., 1995).

Cue-exposure treatment is not always effective. There have been a number of controlled trials that investigated the efficacy of cue-exposure treatment (Havermans & Jansen, 2003) in the areas of tobacco addiction, alcohol addiction, opiate addiction and eating disorders. Niaura et al. (1999) utilized cue-exposure treatment with

smokers and found that it did not prevent smoking relapse. Drummond and Glautier (1994) found that cue exposure treatment increased the latency of relapse but when compared to a control group (having received relaxation training), relapse rates were no different in alcohol dependent individuals. As well, when compared with a standard inpatient treatment, Dawe et al. (1993) found that cue exposure had no effect on relapse in opiate addicts. Finally, Carter, Bulik, McIntosh, and Joyce (2002) found that cue reactivity at post treatment did not contribute to the prediction of outcome at follow-up in patients with Bulimia Nervosa. Also, pre-treatment cue reactivity did not predict which treatment modality would be the most beneficial.

For the treatment of pathological gambling, cue-exposure treatment outcome results have also been unimpressive (Symes & Nicki, 1997). Symes and Nicki suggested that the possible reason for the lack of positive results was due to the passive exposure to gambling cues. This passive exposure included having individuals simply observe gambling in a customary gambling situation (Symes & Nicki, 1997). To involve individuals more actively as well as passively with the cues, Self (1989) employed cue-exposure, response-prevention treatment with cigarette smoking behaviour. In this case, as well as exposing the smoker to passive, real-life cues, the smoker was also repeatedly exposed to more active cues such as sight, touch, and smell on a massed trial basis (Symes & Nicki, 1997). Symes and Nicki (1997) applied a similar treatment to the behaviours of two pathological gamblers. The findings indicated success, as in both cases the rate of gambling behaviour substantially decreased. As well, both participants refrained from gambling for one-month after treatment (final outcome). In addition, the number and strength of urges

to gamble decreased for both participants. Thus, cue-exposure, response prevention treatment appeared to be a promising tool in the treatment of urges resulting from gambling related cues.

Sources of Cues:

Shadel, Niaura, and Abrams (2001) compared the effect of exposure to active in vivo cues compared to two active or neutral video cues matched for time and content. The video cues were delivered via videotape and were on self-reported smoking craving (Shadel et al., 2001). Cues that were delivered through the active in vivo channel produced the highest ratings of craving in participants. Active video cues produced the next highest rating following lastly by neutral video cues. They found that video presentation of smoking cues was a viable manipulation option in cue-reactivity studies and that craving was sensitive to the delivery channel (Shadel et al., 2001). Not only do nicotine cues influence craving, but they have also been shown to influence dependence, tolerance, use, and treatment outcome (Rees, 1997).

Wrase et al. (2002) used pictures of alcoholic beverages to study brain activation in abstinent alcoholics. They found that standardized pictures of alcoholic beverages were useful in assessing brain circuits involved in the processing and evaluation of alcohol cues (Wrase et al., 2002). Alcohol cue-reactivity can also be reliably induced and assessed using personalized videotapes in alcohol-dependent individuals (Streeter et al., 2002). Streeter et al. (2002) examined whether alcohol craving could be induced by viewing a personalized videotaped cue. Alcohol dependent individuals demonstrated the greatest urge to drink when compared to both a light-drinking group, and a moderate-drinking group. Personalized videotaped cues

were effective in eliciting urges.

Toro et al. (2003) carried out cue-exposure with 6 women diagnosed with bulimia nervosa who had either responded poorly or not at all to the usual cognitive-behavioural or pharmacological treatments. Both binge eating and vomiting were almost totally suppressed in each of the patients. As well, suppression of symptoms was maintained at two follow-ups (4-20 months and 2.5-3 years). They concluded that cue exposure may be effective in treating bulimia nervosa that is resistant to conventional treatments.

The cue to gamble can come from a number of sources. If a gambler walked into a casino, the excitement and sounds could produce physiological arousal and motivate that person to engage in gambling. Presumably, individuals can be affected by different cues with some particular cues not eliciting the same level of response between individuals. For example, one gambler may be particularly activated to gamble upon hearing of someone else's win whereas another gambler may exhibit cue-reactivity towards the sight and sounds of a casino alone. Sharpe et al. (1995) examined a variety of sources for cues to determine under which conditions gambling related cues were related to increased autonomic arousal. Altogether, there were five conditions: a neutral task; a videotaped poker machine gambling scenario presented with, and without distraction; a personally relevant "win" situation; and a videotaped horse race. Their indicators were: skin conductance level, heart rate, and frontalis electromyography (Sharpe et al., 1995). For problem gamblers, increases in autonomic arousal were evident in all three measures when personally relevant situations were presented (Sharpe et al., 1995). This suggests that personal relevance

is an important factor in determining which cues will act to elicit urges and which cues may not.

Verbal information about gambling experiences is often transmitted among individuals returning from various gaming endeavours and anecdotally, is often about wins. In fact, the majority of gambling stories reported in the media are of wins and not losses (Hill & Williamson, 1998; McMullen & Mullen, 2001). Reports of gambling wins in the media are a possible source of cues that can create urges in some gamblers. As well, verbal communications from family and friends could also act as gambling-related cues. However, the relative impact of these various sources of cues (media vs. friends and relatives) has not been investigated.

Jamieson, Mushquash, and Mazmanian (2003) showed that gamblers report cue-reactivity (feel urges to gamble) upon hearing of the reports of wins by others. This type of cue-reactivity was more likely to affect younger individuals, males, and those who reported that their gambling was out of control (problem gamblers). A total of 30% of the gamblers surveyed reported such reactivity. A smaller proportion of those surveyed also reported acting on these urges (10% visited a casino to engage in gambling, and 20% bought lottery tickets). Problem gamblers were just as likely to feel urges after hearing a report of another person's win, but were significantly more likely than non-problem gamblers to act on these urges. Although Jamieson, et al. (2003) demonstrated that some gamblers report cue-reactivity when hearing about the wins of others, the study did not examine or compare the relative impact of cues (reports of gambling wins) from family or friends to reports of wins in the media. As well, the issue of what cognitive factors might mediate the feeling of urges or the

decision to act on these urges was not examined.

The purpose of Jamieson et al.'s study (2003) was to examine if there were any social factors that influenced gamblers reports of wins, or more explicitly, why they might over-report wins. In addition to rating a number of factors (reasons for over-reporting wins) in terms of their importance for themselves, gamblers were asked to rate the importance of the same reasons for others. The emerging theme was that gamblers felt that each of the reasons to over-report wins were important to other people, but were not important reasons to themselves for over-reporting wins. There are a number of potential explanations for this discrepancy. Tonneatto (1999) found that gamblers often minimize the skill of other gamblers, while at the same time have exaggerated self efficacy in their own ability to win. As well, a number of cognitive distortions or biases have been identified in pathological gamblers. Gabory and Ladouceur (1989) found that gamblers tended to attribute losses to external factors such as bad luck while attributing successes to personal factors such as skill. Gamblers have also shown optimistic biases such as the illusion of control over one's destiny (Hoorens, 1994) and unrealistic optimism or overconfident expectations of winning (Weinstein, 1980). However, as described by Jamieson et al. (2003), "this discrepancy may well reflect a general self-presentation bias, not specific to gamblers" (p. 9). As well, there is some concern that socially desirable responding may have caused the underreporting of reasons which might make the gamblers look bad.

The purpose of the present study was to examine the cue-reactivity of verbal information on gamblers. Information about what types of people are more affected

by the reports of wins as well as the effects of differing sources of information was gathered. Data on these issues could be useful for treatment providers in designing therapeutic interventions for pathological gamblers. As well as risk factors and the relative impact of sources of information, the present study examined thoughts that may underlie whether the urges are acted upon. Do they gamble more after hearing of another's win because of changes in the expectations of winning (effect on subjective probability), an increased desire to obtain the monetary prize, changes in the feeling of luck, or increased urges to gamble? As well, cognitions that might determine how they resist urges to gamble were examined. Gamblers were asked to rate each reason for acting on or resisting urges to gamble for themselves and others.

Because one of the most important factors that determine whether an individual experiences cue-reactivity is salience or personal relevance, it was hypothesized that reports of wins from friends or family members would elicit stronger urges than television or read material. As well, a replication of Jamieson et al. (2003) was expected, in that younger males with the tendency towards more pathological behaviours would be the most affected by reports of gambling wins. In anticipation of the self versus others bias reported by Jamieson et al. (2003), the Impression Management Scale from the Balanced Inventory of Desirable Responding-VI, (Paulhus, 1991) was included in the present study in order to measure socially desirable response patterns. Jamieson et al. (2003) found that gamblers tended to present themselves in a favourable light while presenting others unfavourably when asked about reasons why they may over-report wins. The Impression Management Scale was included to evaluate any relationships between

socially desirable responding and presenting themselves in a favourable light when reporting reasons for acting on, or resisting urges to gamble.

Jamieson et al. (2003) also employed a methodology that sampled gamblers using the Internet via gambling-related discussion forums and people searches. Internet data collection has been shown to be as valid and reliable as traditional paper and pencil methods in areas such as alcohol use (Miller et al., 2002) and personality (Buchanan & Smith, 1999; Pettit, 2002). The same methodology was used for the present study, with additional demographic variables such as ethnicity and frequency of play for a variety of games. The purpose of asking the additional demographic information was to examine potential risk factors beyond simply age and gender.

Method

Participants:

The sample consisted of 46 females (25.3%) and 135 males (74.2%), with one individual not indicating gender, for a total of 182 respondents. The mean age was 32.3 years (standard deviation = 12.5); the minimum age was 18 years and the maximum age was 71 years. Two respondents did not specify their age.

Measures:

In order to explore these questions, a 61-item questionnaire (Appendix A) was designed to collect information on demographics, gambling behaviour, urges to gamble, and thoughts that might underlie acting on urges or resisting urges to gamble.

Respondents were asked to provide their age, gender, and ethnicity. As well, a number of specific questions about participants' gambling behaviour were asked. They were asked to report on their frequency of play for different games (slot

machines, lottery, bingo, sports betting, blackjack (21) or other casino games) using a 5-point scale with 1 = “never” and 5 = “on most days”. They were also asked questions which assessed pathological gambling behaviours such as whether they had ever felt their gambling was out of control, whether they had ever chased losses, whether they displayed gambler’s fallacy, and whether they had ever wanted to stop gambling but did not feel able to.

Respondents were asked about whether they had ever felt urges to gamble based on the reports of other people’s wins. To assess the effects of varying sources of reports, questions identified situations where the information was read, viewed on television, or came from a friend or relative. Each question was on a 4-point scale from 1 = “not at all” to 4 = “often”. Finally, participants were asked if they had ever acted on urges to gamble. These questions were again based on a 4-point scale with 1 = “no” and 4 = “often”.

Another section of the questionnaire explored thoughts that might underlie either the activation or the prevention of gambling behaviour following exposure to reports of other people’s wins, for self and others. Gamblers were asked to rate the degree to which they agreed with each statement as it related to themselves and others. Options were on a 5-point scale with 1 = “strongly disagree” to 5 = “strongly agree”.

The 20-item Impression Management Scale from the Balanced Inventory of Desirable Responding-VI, (Paulhus, 1991) was included in the present study in order to measure socially desirable response patterns. Questions on the BIDR-VI are worded as propositions and respondents are asked to rate (5-point scale from

“strongly disagree” to “strongly agree”) the degree to which they agree with each statement.

Procedure:

Participants were solicited over the Internet using popular Internet peer chat/instant messenger programs such as ICQ (<http://web.icq.com/>), MSM (<http://messenger.msn.com/>), and AIM (http://www.aol.ca/aim/index_eng.adp), and through a number of gambling related discussion forums (Appendix B). To target gamblers, searches were done within these programs using key words such as ‘gambling’. The following message was posted in each discussion forum: “Sorry to interrupt you, I am a graduate student at Lakehead University and study gambling. If you would like to participate in a short, anonymous research survey – click on, or copy and paste the following link into your Internet browser address bar:

<http://gamblingsurvey.lakeheadu.ca/>

Please forward it on to anyone on your contacts list who you think would be interested in participating in this research. Thank you”, and randomly sent to individuals who used the ICQ, MSM, or AIM programs. Upon clicking on the link, respondents were directed to the consent form (Appendix C). Upon consenting to participate, respondents were instructed to click on “I wish to participate” and were redirected to the questionnaire which took about 15 minutes to complete. Responses were sent directly to a database that could be accessed by SPSS.

Results

Participants were asked how often they played various games. The most popular games were lottery tickets (played by 68.1%), blackjack (62.1%), other

casino games (56.0%) and slot machines (46.2%). The least popular were bingo (only played by 16.5%) and sports betting (38.5%) (see Table 1).

Table 1: Number and percentage who gamble at various games

	Slot Machines		Lottery Tickets		Bingo		Sports Betting		Blackjack (21)		Other Casino Games	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
On most days	1	.5	4	2.2	2	1.1	6	3.3	10	5.5	10	5.5
Several times a week	2	1.1	8	4.4	2	1.1	5	2.7	7	3.8	9	4.9
Several times a month	6	3.3	37	20.3	3	1.6	20	11.0	33	18.1	22	12.1
Once a month or less	75	41.2	72	39.6	21	11.5	38	20.9	59	32.4	59	32.4
Never	98	53.8	58	31.9	152	83.5	112	61.5	69	37.9	80	44.0

Several questions were designed to identify problem gamblers. To the question “Do you feel your gambling is out of control?” 15.1 % answered either yes or occasionally. Other measures of problem gambling were chasing losses at least some of the time (reported by 33.5%), not being able to stop gambling even though they wanted to (reported by 8.9%), and having gambled more than they had intended to (reported by 50.8%). In response to the question, “If you tossed a normal coin and it came up ‘heads’ 5 times in a row, what would be the most likely result of the next toss?” 23.2% exhibited the gambler’s fallacy that the outcome of a coin toss was different than chance. Those who reported their gambling was more out of control were significantly more likely to show the gambler’s fallacy, $r(176) = .211, p = .001$, report chasing losses, $r(177) = .389, p < .001$, have gambled more than intended, $r(174) = .162, p = .032$, and been unable to stop gambling, $r(175) = .397, p < .001$.

Effect of reports of wins on urges to gamble:

Three different sources of reports of wins were examined: reading about

someone's win, a story on TV about someone's gambling win, and a friend or relative telling about their gambling win. These sources differed significantly in the strength of urges they elicited, $F(2, 360) = 5.91, p = .003$ (see Table 2).

Table 2: Frequencies and percentages reporting the urge to gamble

Do you feel the urge to gamble:	Not at all		Slight Urge		Moderate Urge		Strong Urge	
	Freq	%	Freq	%	Freq	%	Freq	%
When you read about someone's gambling win?	91	50	72	39.6	15	8.2	4	2.2
When you see a story on TV about someone's gambling win?	101	55.5	64	35.2	15	8.2	2	1.1
When a friend or relative tells you about their gambling win?	87	47.8	69	37.9	23	12.6	2	1.1

Although about half of those who responded did not feel urges to gamble (50%, 55.5%, and 47.8% for reading, television, and friends/relatives as sources of information respectively), the other half did report feeling at least slight urges. Moderate or strong urges to gamble were reported by 10.4% after reading a story about someone's gambling win, 9.3% after seeing a story on television about someone's gambling win, and 13.6% after hearing about a friend or relative's gambling win.

In order to determine to compare the three sources of information, paired samples t-tests were conducted. Reading ($M = 1.63, SD = .73$) produced significantly stronger urges than did television ($M = 1.55, SD = .69$), as a source of information, $t(181) = 2.30, p = .023$. As well, reports of wins from friends and relatives ($M = 1.67, SD = .74$) produced significantly more urges in individuals than television, $t(180) = 3.18, p = .002$. There was no significant difference between mean level of urges

when the information came from friends and relatives, or was read.

Participants were also asked if they had ever acted on any of these urges to gamble. The majority of respondents (58.2%) reported that they did not act on urges to gamble, 19.8% answered 'maybe once', 18.7% answered "occasionally", and 3.3% answered "often". Almost a quarter of those sampled (22%) reported that they acted on their urges to gamble at least occasionally.

Correlates of Urges to Gamble:

In order to determine who was more likely to feel urges to gamble, correlations were conducted between the measures of urges and age, gender, type of gambling, as well as some problem behaviours (Table 3). Individuals who felt an urge to gamble after reading about someone else's gambling wins were more likely to be younger, play slot machines more often, have lost more than they have won, have felt their gambling was out of control at times, displayed gambler's fallacy, had chased losses, and felt like they could not stop gambling even though they wanted to at times.

Individuals who felt an urge to gamble after watching a story on television about someone's gambling win were more likely to be younger, play slot machines more often, have lost more than they have won, have felt their gambling was out of control at times, displayed gambler's fallacy, and had chased losses.

Individuals who felt an urge to gamble after hearing about a friend or relative's gambling wins were more likely to be younger, female¹, play slot machines more often, have lost more than they have won, display gambler's fallacy, have chased losses, and have gambled more than they intended to sometime in the past.

¹ Point bi-serial correlation, females coded 1 and males coded 2

Table 3: Correlates of feeling and acting on urges to gamble.

	Source of Information:			
	Reading	Television	Friends/ Relatives	Act on Urges
Female ¹	.034	-.029	-.209**	-.057
Younger	-.178*	-.208**	-.207**	-.053
Slot machine players	.195**	.199**	.226**	.203**
Bingo players	.143	.103	.086	.163*
Have Lost More Than Have Won	.272**	.267**	.249**	.178*
Have Felt Out of Control at Times	.206**	.244**	.130	.294**
Displayed Gambler's Fallacy	-.167*	-.209**	-.188*	-.144
Have Chased Losses	.243**	.203**	.222**	.382**
Gambled More Than Intended	-.077	-.083	-.150*	-.212**
Wanted to Stop But Could Not	-.211**	-.144	-.111	-.200**

Note. * Significant at the $p < .05$ level, ** Significant at the $p < .01$ level.

Thoughts Related to Acting on Gambling Urges:

Another purpose of this study was to explore some of the thoughts that explain why someone would gamble more after hearing of another person's gambling win. One-way ANOVA showed a main effect of thoughts that make them gamble more after hearing the report of a win, $F(3, 519) = 47.14, p < .001$. The means for each of the types of thoughts are presented in Table 4 (high scores indicate more agreement).

Table 4: Means (and *SD*) for thoughts that might cause individuals to gamble more after hearing about someone's win.

	<i>M</i>	<i>SD</i>
I just feel the urge to gamble	2.71	1.33
I really want to win a similar amount	2.71	1.43
I believe I am more likely to win	1.90	1.11
This is a lucky time to play	1.70	1.03

Post hoc comparisons were conducted using Bonferroni adjusted paired sample *t*-tests to examine which thoughts were more likely to make people act on urges to gamble. The two options "I just feel the urge to gamble" and "I really want

to win a similar amount” had the same mean ($M = 2.71$). The option “I just feel the urge to gamble” was significantly more likely to be related to acting on urges to gamble than each of “I believe I am more likely to win”, $t(175) = 7.00, p < .001$, and “This is a lucky time to play”, $t(173) = 8.96, p < .001$. As well, “I really want to win a similar amount” was significantly more likely to be related to acting on urges to gamble than each of “I believe I am more likely to win”, $t(175) = 7.62, p < .001$, and “This is a lucky time to play”, $t(173) = 8.87, p < .001$. The option “I believe I am more likely to win” was significantly more likely to be related to acting on urges to win than “This is a lucky time to play”, $t(173) = 2.38, p = .019$.

A one-way ANOVA showed significant differences among thoughts which prevented gamblers from acting on urges, $F(3,513) = 79.53, p < .001$. The means for each of the types of thoughts are presented in Table 5 (high score indicates more endorsement).

Table 5: Means (and SD) for thoughts that might cause individuals not to gamble more after hearing about someone’s win.

	<i>M</i>	<i>SD</i>
Just because someone else won, doesn't mean I am more likely to win	4.45	.78
I don't feel lucky just because someone else won	4.21	.95
I will have lots of opportunity to gamble later	3.81	1.16
I need to control these urges so I don't gamble too much	2.87	1.40

Again, Bonferroni adjusted paired sample *t*-tests were conducted to examine where the differences occurred. The option “Just because someone else won, doesn't mean I am more likely to win” was rated as significantly more important than “I need to control these urges so I don't gamble too much”, $t(172) = 13.56, p < .001$ as well as “I will have lots of opportunity to gamble later”, $t(173) = 6.26, p < .001$, and “I don't feel lucky just because someone else won”, $t(174) = 3.58, p < .001$. The option

“I don't feel lucky just because someone else won” was rated significantly more important than “I need to control these urges so I don't gamble too much”, $t(172) = 11.04, p < .001$, and “I will have lots of opportunity to gamble later”, $t(173) = 3.88, p < .001$. Finally, the reason “I will have lots of opportunity to gamble later” was rated as significantly more important than “I need to control these urges so I don't gamble too much”, $t(171) = 7.12, p < .001$.

Perception of Self versus Others:

The present study compared the reports of reasons individuals might act on urges to gamble for themselves with how important they rated the reasons for others. Paired samples t-tests showed that individuals rated each of the reasons to gamble after feeling an urge as significantly more important for others than themselves. Each pair of reasons is presented in Table 6 with the means and standard deviations as well as the corresponding t-test information.

Table 6: Comparison of reasons to act on urges to gamble for self and others.

	Self		Others		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
I (they) believe I (they) am more likely to win	1.90	1.11	3.46	.98	$t(174) = -16.28, p < .001, d = 1.49$
I (they) just feel the urge to gamble	2.71	1.33	3.49	.90	$t(173) = -7.78, p < .001, d = .70$
I (they) really want to win a similar amount	2.71	1.43	3.96	.88	$t(173) = -11.77, p < .001, d = 1.08$
This is a lucky time to play	1.70	1.03	3.50	1.05	$t(171) = -17.16, p < .001, d = 1.73$

Respondents were also asked to rate each of the thoughts that might prevent acting on gambling urges for others. Each response option, the means and standard deviations and the corresponding t-test information are presented in Table 7.

Table 7: Comparison of reasons to resist urges for self and others.

	Self		Others		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Just because someone else won, doesn't mean I (they) am (are) more likely to win	4.45	.782	3.77	.86	$t(172) = 8.34, p < .001, d = .83$
I (they) need to control these urges so I (they) don't gamble too much	2.87	1.40	3.51	.92	$t(172) = -5.91, p < .001, d = .55$
I (they) don't feel lucky just because someone else won	4.21	.95	3.48	1.01	$t(173) = 7.44, p < .001, d = .74$
I (they) will have lots of opportunity to gamble later	3.81	1.16	3.55	.94	$t(171) = 2.26, p = .025, d = .25$

Individuals rated each of the thoughts as significantly more important to them, except for the thought “I need to control these urges so I don't gamble too much”, which they rated as significantly less important to themselves than to others.

Impression Management:

Difference scores were computed between the importance of each of the reasons for themselves and for others in order to obtain direct indices of the discrepancy between self and others (“others” score minus “self” score). Correlations were conducted with the total score from the impression management scale. Most of the correlations were not significant. The only reason that correlated with impression management was “I (they) just feel the urge to gamble”, $r(174) = .16, p = .030$. This shows that the more an individual presents others unfavourably on this item, the greater the degree of impression management they are engaging in.

Discussion

The purpose of the present study was to examine the cue-reactivity associated with reports of wins on gamblers. Information about what types of people are more affected by the reports of wins as well as the effects of differing sources of information (read, television, friends/relatives) was gathered. The present study also examined the relative importance of different sources of information that might create urges to gamble, the characteristics of those gamblers who experience stronger urges, and the characteristics of those who act on the urges. In addition, reasons why gamblers might act on urges to gamble were explored, along with thoughts they may have which block urges. Another issue explored was the discrepancy between how gamblers viewed themselves versus other gamblers in the reasons why they might act or not act on urges to gamble. Is it possible that this discrepancy reflects a response bias (impression management) which could mask the true reasons why people act on urges?

In order to establish the presence of urges to gamble after hearing the reports of someone else's wins, respondents were asked whether they had ever felt urges to gamble after hearing about someone else's wins from each of three sources: television, reading, and friends or relatives. About half of those sampled indicated that they felt the urge to gamble after hearing about someone else's wins. The reported strength of urges differed among the three sources. Both reading a story about a win and hearing a story about a win from a friend or relative elicited significantly stronger urges to gamble than seeing a story about a win on television. These findings confirm that not only do gamblers feel urges to gamble after being

exposed to physical gambling related cues (Leary & Dickerson, 1985; Sharpe et al., 1995), but informational cues can also act to elicit urges. A gambler need not visit a casino to feel an urge to gamble; the urge could come from a number of sources such as a friend or relative's report of a win.

The finding that friends and relatives produced significantly stronger urges than television is consistent with the findings of Sharpe et al. (1995), who found that personally relevant or salient sources of information produce the strongest urges to gamble. The finding that reading was equally effective as personal reports and significantly more effective than television was unexpected, especially in view of the generally accepted view of the influence of television on individuals. In their examination of demographic and phenomenological features of pathological gamblers, Grant and Kim (2001) found that approximately one half of their sample reported that television, radio, and billboard advertisements acted as triggers to gamble. The present study suggests that these sources may not all be equally effective. It is perhaps relevant that magazine advertising has been shown to produce more brainwave activity than television advertising showing that it was more closely attended to (Weinstein, Appel, & Weinstein, 1980). Their findings indicate that information which is read is more actively attended to than information from the more passive television mode, and perhaps such active attention is necessary to elicit a strong urge to gamble.

Is there a particular subgroup of gamblers who is more likely to feel urges to gamble in response to exposure of others' wins? In order to explore this question, correlations between feeling urges and various demographic information such as age,

gender, and preferred game, as well as information on gambling behaviour were examined. Gamblers who were more likely to feel urges included those who were younger, played slot machines, lost more than they had won, have felt their gambling was out of control, displayed gambler's fallacy, and had chased losses. These findings indicate that feeling stronger urges to gamble are associated with pathological gambling behaviour, as well as being present in those who are younger and who play slot machines.

In a previous study, Jamieson et al. (2003) found that males reported feeling significantly more urges to gamble and were significantly more likely to act on them. In contrast, the present study only found one gender difference: females reported significantly stronger urges to gamble than males upon receiving information about gambling wins from friends and relatives. The reason for this discrepancy is unclear, but may indicate that reports of wins from friends and relatives are particularly salient for female gamblers, or that female gamblers place higher importance on social relationships with family and friends.

The biggest problem associated with feeling urges is whether or not individuals act on their urges and gamble. Presumably, simply feeling urges without acting on them is not very harmful. About 60% of the gamblers reported they did not act on their urges to gamble. However, 22% reported that they acted on their urges to gamble either occasionally or often. Bingo players and those who played slot machines were significantly more likely to act on their urges to gamble than those who played other games. This is perhaps a concern because of the availability of gambling opportunities for these games. For example, online casinos have slot

machines that are available via home personal computer. This could mean that an individual who feels the urge to gamble would not have to travel very far to act on the urge, potentially gambling from their home.

The present study was also designed to identify reasons that gamblers give for acting on their urges to gamble. The reasons “I just feel the urge to gamble” and “I really want to win a similar amount” were significantly more strongly related to acting on urges to gamble than the reasons “I believe I am more likely to win”, and “This is a lucky time to play”. As well, “I believe I am more likely to win” was significantly more likely to be related to acting on urges to win than “This is a lucky time to play”. The strongest effect of the reports of wins seems to be on emotional factors which underlie gambling. The reasons: “I just feel the urge to gamble” and “I really want to win a similar amount” are more emotionally based than the reasons “I believe I am more likely to win” and “This is a lucky time to play” which are more cognitively based. These findings suggest that gambling behaviour following reports of wins is more likely under emotional than cognitive control.

To explore the thoughts that prevent gamblers from acting on urges to gamble, gamblers were also asked about reasons why they might *not* act on urges to gamble after hearing the report of a gambling win. The highest rated reasons for not acting on the urge to gamble were “Just because someone else won, doesn’t mean I am more likely to win” and “I don’t feel lucky just because someone else won”. In contrast, the reasons “I will have lots of opportunity to gamble later” and “I need to control these urges so that I don’t gamble too much” were significantly less important factors in not acting on the urge to gamble. These two highly rated reasons for not gambling

were both ones which involved comparing themselves to others. Thus the recognition that the report of what happened to others was unlikely to also happen to them was the main reason given for why gamblers did not act of the urge to gamble upon heading of another's win.

Reasons that prevent gamblers from acting on urges are important to explore because of their possible clinical implications. For example, identifying the reasons why some individuals are able to resist acting on an urge to gamble may provide insights into how to help other gamblers learn not to act on their urges. Simply feeling urges alone is not as harmful to the individual as acting on the urges. As well, controlling urges demonstrates that the gambler is able to employ the necessary tools to ensure that their behaviour does not escalate into gambling. Treatment of urges in pathological gamblers could include education and practice utilizing cognitive resources to apply useful reasons as a strategy to alleviate urges to gamble before visiting a gambling environment.

Perception of Self versus Others:

In addition to rating the importance to themselves of a number of cognitions and reasons to act, or not act on urges to gamble, they were also asked how important they thought each of the cognitions and reasons were for other people. Gamblers rated each of the four reasons to act on urges to gamble as significantly more important to others than to themselves. Three of the four reasons not to act on urges were rated significantly more important to themselves than others. In contrast, the reason "I need to control these urges so I don't gamble too much" was rated significantly more important to other gamblers than to themselves. This may be

because of a social stigma toward feeling urges to gamble, and thus reflective of a socially desirable pattern of responding. In order to manage the impression that they projected, gamblers may have emphasized their own ability to control urges by not rating that particular reason as important to them. In contrast, they minimized other people's ability to control urges by judging that particular reason as important to others.

These findings replicate the discrepancy between gamblers' views of themselves and others reported by Jamieson et al. (2003). They reported that "the...findings show that gamblers minimize the gambling success and honesty of other gamblers, relative to themselves" (p. 8). The present findings show that the discrepancy extends to reporting on reasons why gamblers might act on urges to gamble and reasons why gamblers do not act on urges to gamble.

The discrepancy between how gamblers perceive themselves and others in each of these studies requires clarification. In order to examine whether this effect was simply a general self perception bias not specific to gambling, an impression management scale (Paulhus, 1991) was added in the present study. Correlations were conducted between the impression management scale and direct indices of the discrepancy between self and others (difference scores between the self and other for each reason). Only one difference score was significantly correlated with the impression management scale, "I (they) just feel the urge to gamble". This reason to gamble may be more susceptible to impression management than the other items, perhaps indicating a greater negative stigma with respect to feeling urges to gamble. However, the other reasons were not significantly correlated, indicating that the

discrepant ratings of these reasons for themselves and others were not a general impression management bias.

While the present findings rule out impression management as a major factor in explaining the discrepancy between how gamblers perceive themselves and others, it is still possible that other aspects of social desirability may be involved. For example, Paulhus (1991) pointed out that social desirability consisted of two factors, impression management, and self-deceptive positivity, which is an honest but overly positive self-presentation (see also Borkeu & Ostendorf, 1989; Edwards & Walsh, 1964; Jackson & Messick, 1962; Paulhus, 1984; Wiggins, 1964). One factor (impression management) describes an active, purposeful tailoring of answers to create the most positive social image while the remaining factor (self-deceptive positivity) is an honest (albeit exaggerated) personal assessment of an individual's standing compared to others. Paulhus's (1991) Balanced Inventory of Desirable Responding-VI contains a measure of self-deceptive positivity, however only the impression management scale from this instrument was used in the present study. Future research might examine self-deceptive positivity in gamblers to examine whether the discrepancy between information given for self and others is related to this other social desirability construct.

Limitations:

A limitation of the present study is that only a few reasons why gamblers act on, or conversely resist urges to gamble were evaluated. Additional reasons or thoughts that might compel gamblers to engage in gambling, or resist urges to gamble might be discovered through qualitative exploration. This study only examined a few

common reasons without allowing individuals to describe the full range of thoughts or feelings that they may have when confronted with an urge to gamble. Employing a qualitative methodology might highlight additional areas that may play a role in mediating the relation of urges to gamble and gambling behaviour.

Another possible limitation of the present study has to do with internet data collection. Although these methods have been shown to be as valid as traditional paper and pencil methods in areas such as alcohol use (Miller et al., 2002) and personality (Buchanan & Smith, 1999; Pettit, 2002), in this case there was no real way of determining where in the world respondents were answering from. Had gamblers been sampled from the same geographical area and given the option of either paper and pencil, or internet form, results could be directly compared and assessed for reliability. As well, the forms of gambling asked about are those commonly available in Ontario. Questions about other popular forms of gambling for example, video lottery terminals (VLTs), were not included. However, the method of sampling gamblers used in this study (the only criteria being that they were English-speaking) is a potential strength. The generalizability of these findings potentially stretches farther than a single geographic location.

Future research might explore other factors known to impact gambling behaviour, to examine whether they in turn affect feeling and acting on urges. For example, pathological gamblers have been shown to engage in more risk taking behaviours and gamble for longer periods of time after consuming only moderate amounts of alcohol (Ellery, Stewart, & Loba, in press). Alcohol decreases inhibitory responses which in the context of urges to gamble, may play a role in not allowing

gamblers to properly utilize the cognitions that they might need to prevent acting on urges to gamble. Also, because of the high comorbidity associated with the misuse of alcohol and the presence of pathological gambling (Stewart & Kushner, 2003), further consideration should be given to the impact of the use of alcohol on urges to gamble. As well, standardized and validated measures of pathological gambling symptoms could be administered rather than the abbreviated version used in the present study to have a more accurate indication of level of gambling pathology.

Recently, Caron and Ladouceur (2003) demonstrated that gamblers exposed to erroneous verbalizations about gambling made by a confederate, took significantly more risks than players in groups where a confederate either did not speak, or verbalized adequate thoughts about gambling. Erroneous perceptions appear to be easily transmissible and have impacts on gambling behaviour. Future research might utilize a similar methodology, substituting erroneous perceptions with reports of other's wins in the lab, to examine the effects of this information on subsequent gambling behaviour.

In summary, not only do gamblers feel urges to gamble after being exposed to physical gambling related cues (Leary & Dickerson, 1985; Sharpe et al., 1995) but informational cues such as reports of gambling wins can act to elicit urges. Reports of wins from friends or relatives, and reports that are read elicit stronger urges than reports on television, possibly due to the salience associated with friends and relatives, and because information which is read is more actively attended to than information from the more passive television mode. Gamblers are more likely to gamble more because of reports of wins for emotional reasons such as, "I just feel the

urge to gamble” and “I really want to win a similar amount”. This finding suggests that informational reports are reacted to emotionally rather than cognitively. Finally, individuals who exhibit pathological gambling behaviours are more susceptible to feeling urges after hearing about the reports of other people’s wins and are more likely to act on these urges.

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Appendix A

Gambling Questionnaire

Lakehead University
Thunder Bay, Ontario, Canada
P7B 5E1

Section A: Demographics

Please provide us with some information about yourself.

1. Please indicate your gender

- Female
- Male

2. Please indicate your age _____

3. With what ethnic group do you most identify? _____

How often do you gamble at each of the following games?

4. Slot machines

- Never
- Once a month or less
- Several times a month
- Several times a week
- On most days

5. Lottery tickets?

- Never
- Once a month or less
- Several times a month
- Several times a week
- On most days

6. Bingo?

- Never
- Once a month or less
- Several times a month
- Several times a week
- On most days

7. Sports betting?

- Never
- Once a month or less
- Several times a month
- Several times a week
- On most days

8. Blackjack (21)?

- Never
- Once a month or less
- Several times a month
- Several times a week
- On most days

9. Other casino games?

- Never
- Once a month or less
- Several times a month
- Several times a week
- On most days

10. Some people are very good at counting cards in blackjack (21), and feel that they have an advantage over the house. How would you describe your own experience with blackjack?

- Rarely or ever play blackjack
- Rarely or ever try to count cards
- Try to count cards, but not successful
- Moderately successful at counting cards
- Very successful at counting cards

11. How does the amount of money you have won compare to the amount you have lost (or spent) gambling?

- Won much more than I lost
- Won a little more than I lost
- About even
- Lost a little more than I won
- Lost much more than I won

12. Do you feel that your gambling is out of control?

- No
- Occasionally
- Yes

13. If you tossed a normal coin and it came up 'heads' 5 times in a row, what would be the most likely result of the next toss?

- Another head
- A tail
- Head and tail equally likely

14. How many gamblers lose more than they win?

- None
- Some
- Half
- Most
- All

15. When you gamble, how often do you go back another day to win back money you have lost?

- Never
- Some of the time (less than half the time I lose)
- Most of the times I lose
- Every time I lose

16. Did you ever gamble more than you intended to?

- Yes
- No

17. Have you ever felt like you would like to stop betting money on gambling, but didn't think you could?

- Yes
- No

Section B: Urges to Gamble

1. When you read about someone's gambling win, do you feel the urge to gamble?

- Not at all
- Slight
- Moderate
- Strong urge

2. When you see a story on T.V. about someone's gambling win, do you feel the urge to gamble?

- Not at all
- Slight
- Moderate
- Strong urge

3. When a friend or relative tells you about their gambling win, do you feel the urge to gamble?

- Not at all
- Slight
- Moderate
- Strong urge

4. Have you ever acted on any of these urges and gambled?

- No
- Maybe once
- Occasionally
- Often

5. Have you ever gone to the casino because a friend told you about a large jackpot they had won?

- No
- Maybe once
- Occasionally
- Often

6. Have you bought more lottery tickets than you normally would have, because you read about someone winning a huge lottery prize?

- No
- Maybe once
- Occasionally
- Often

7. Have you ever gone to the casino because you read about a large jackpot someone had won?

- No
- Maybe once
- Occasionally
- Often

8. Have you bought more lottery tickets than you normally would have, because a friend or relative told you about a huge lottery prize they had won?

- No
- Maybe once
- Occasionally
- Often

Section C: Thoughts

The following questions will be about thoughts that you or others might have. Please indicate how much you agree with each of the following statements.

1. If you were to gamble more after hearing about someone's large win, it would be because:

a. I believe I am more likely to win.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

b. I just feel the urge to gamble

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

c. I really want to win a similar amount

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

d. This is a lucky time to play

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

2. If other people were to gamble more after hearing about someone's large win, it would be because:

a. They believe they are more likely to win

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

b. They just feel the urge to gamble

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

c. They really want to win a similar amount

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

d. They feel this is a lucky time to play

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

3. If you felt a strong urge to gamble after hearing about a win but did not do so, what thoughts might stop you from gambling?

a. Just because someone else won, doesn't mean I am more likely to win

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

b. I need to control these urges so I don't gamble too much

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

c. I don't feel lucky just because someone else won

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

d. I will have lots of opportunities to gamble later

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

4. If other people feel a strong urge to gamble after hearing about a win but do not do so, what thoughts might stop them from gambling?

a. Just because someone else won, doesn't mean they are more likely to win

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

b. They need to control these urges so they don't gamble too much

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

c. They don't feel lucky just because someone else won

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

d. They will have lots of opportunities to gamble later

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

Section D: Last Part

Please indicate how much you agree with the following statements:

1. I sometimes tell lies if I have to.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I never cover up my mistakes.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. There have been occasions when I have taken advantage of someone.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I never swear.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I sometimes try to get even rather than forgive and forget.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I always obey the laws, even if I'm unlikely to get caught.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I have said something bad about a friend behind his/her back.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. When I hear people talking privately, I avoid listening.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. I have received too much change from a salesperson without telling him or her.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. I always declare everything at customs.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. When I was young, I sometimes stole things.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. I have never dropped litter on the street.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. I sometimes drive faster than the speed limit.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I never read sexy books or magazines.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

15. I have done things I won't tell other people about.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

16. I never take things that don't belong to me.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

17. I have taken sick leave from work or school even though I wasn't really sick.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

18. I have never damaged a library book or store merchandise without reporting it.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

19. I have some pretty awful habits.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

20. I don't gossip about other people's business.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

You are finished!

[Click to send your answers](#)

[Click to clear your answers](#)

Thank you for taking part in this survey, we appreciate all your help. Please forward this link to a friend so they can do it too. If you have any questions about this survey or psychology in general, please feel free to contact me:

*Chris Mushquash, HBS., MA (Candidate)
Department of Psychology
Lakehead University
Thunder Bay, Ontario, Canada
P7B 5E1*

chrismushquash@shaw.ca

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Appendix B

Gambling-related discussion forums that were used to solicit participants:

<http://www.bj21.com/frames/index.html>

<http://www.casinomeister.com/forums/>

http://dmoz.org/Games/Gambling/Chats_and_Forums/

<http://www.excellent-online-casinos.com/forum/index.php>

<http://www.propowerpicks.com/board/>

<http://www.lottalottos.com/forums/default.asp>

<http://www.forum4gamblers.com/index.php>

<http://www.gambling-forum.com/forum2/index.php>

<http://forumserver.twoplustwo.com/ubbthreads.php>

<http://therxforum.com/6/ubb.x?a=cfrm&s=100090022>

<http://mb.winneronline.com/index.html>

<http://www.gamblerslodge.com/glr/index.php>

<http://gamblingboard.com/forum/index.php>

<http://www.got2bet.com/phpBB2/>

<http://www.jokersrewards.com/forum/>

<http://pub118.ezboard.com/bplaying4keeps>

Appendix C

Consent Form

Lakehead University
955 Oliver Road
Thunder Bay, Ontario, Canada
P7B 5E1

This is a study about gambling and is intended for people who gamble on a regular basis. You will be asked questions about how you feel when you hear about other people's wins. Your participation in the study requires only completion of a short questionnaire and is completely voluntary.

By clicking on "**I wish to participate**" below, you indicate that you wish to participate in this study. It also indicates that you understand the following:

1. I am a volunteer who can withdraw at any time from the study for any reason.
2. There are no known risks of physical or psychological harm.
3. The data you provide will remain completely confidential.
4. Data obtained in this research will be stored at Lakehead University by Dr. John Jamieson for seven years, as per standard university procedures.
5. If you would like to review the results of the study, e-mail chrismushquash@shaw.ca and they will be sent to you when the study is completed.

I wish to participate

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