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Public Stigma of Disordered Gamblers:
Social Distance, Dangerousness, Controllability, and Familiarity

by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "Public Stigma of Disordered Gamblers: Social Distance, Dangerousness, Controllability, and Familiarity" submitted by Jenny D. Horch in partial fulfillment of the requirements for the degree of Master of Science.

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Abstract

Disordered gambling stigma was examined. University students (117 male, 132 female) rated vignettes describing males with five health conditions (schizophrenia, alcohol dependence, disordered gambling, cancer, and a no diagnosis control with subclinical problems) on a measure of attitudinal social distance. A mixed ANOVA revealed a main effect of condition, a main effect of sex, an order by condition interaction, and a sex by condition interaction. In keeping with hypotheses, disordered gambling was more stigmatized than the cancer and control conditions. Interactions suggested that disordered gambling stigma is influenced by context and participant characteristics. Perceived dangerousness, controllability attributions, and familiarity were also examined. As predicted, perceived dangerousness was positively correlated with social distance scores. Controllability attributions were negatively correlated but accounted for minimal variance in social distance scores. Familiarity ratings were unrelated to social distance scores. A within subjects design highlighted the importance of context. Implications for treatment modalities are discussed.

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Public Stigma of Disordered Gamblers:

Social Distance, Dangerousness, Controllability, and Familiarity

Mental illness stigma can result in lost life opportunities due to societal rejection. Stigmatized individuals may be rejected as tenants (Page, 1995), employees (Farina & Felner, 1973), romantic partners (Sitton & Blanchard, 1995), and even by their own families (Chung & Wong, 2004). As a result, stigmatized individuals may adopt coping strategies such as secrecy to hide the fact that they have a devalued condition (Link, Mirotznik & Cullen, 1991), leading to reduced treatment seeking and treatment adherence (Sirey et al., 2001). This outcome is particularly detrimental as it may lead to worsening symptoms and longer time to recover from the illness. Approximately two thirds of individuals with mental illness do not seek treatment (Kessler, Nelson, McKinagle, Edlund, Frank & Leaf, 1996) leading to recent consensus that stigma is the greatest problem facing the entire field of mental health (Hinshaw, 2006).

Stigma has long been associated with reduced treatment seeking and treatment compliance in regards to mental illness in general (Corrigan & Kleinlein, 2005) and addictions in particular (Link, Struening, Rahav, Phelan & Nuttbrock, 1997; Rasinski, Woll, & Cooke, 2005). More recently, stigma has been suggested as a barrier to treatment for those struggling with disordered gambling (Hodgins & el-Guebaly, 2000; Rockloff & Schofield, 2004; Tavares, Martins, Zilberman, & el-Guebaly, 2002), a population in which only one in ten will seek treatment (Cunningham, 2005). However, little research has been conducted in support of this claim. The extent to which disordered gambling is stigmatized has yet to be established.

Three studies have suggested disordered gambling may be stigmatized. In a telephone survey study conducted with a general Australian sample, five potential barriers to treatment seeking for problem gamblers emerged. Of these five barriers, stigma ranked second only to ignorance of treatment availability. Fifty-three percent of the respondents indicated that they thought stigma was a barrier to treatment seeking (Rockloff & Schofield, 2004). In a second study, Hodgins and el-Guebaly (2000) asked active and recovered problem and pathological gamblers who had not been exposed to treatment to complete a checklist of reasons for not seeking treatment. Of the 62 individuals who had not received treatment, 39% of recovered gamblers and 51% of active gamblers endorsed stigma as a barrier to their seeking treatment. Third, Tavares and colleagues (2002) examined the impact of four potential treatment-delaying factors for treatment seeking disordered gamblers in Sao Paulo, Brazil. Results indicated that stigma (i.e., shame and secrecy) was one of two strongest predictors of treatment delay.

Although little research has been conducted regarding stigma and gambling, the above three studies provide preliminary support that both the general public and disordered gamblers perceive stigma associated with disordered gambling. This vignette study aims to determine public perceptions and attitudinal response to a hypothetical individual meeting criteria for pathological gambling as compared with several other conditions established as stigmatized, including alcohol dependence, schizophrenia, cancer, and an individual with subclinical worries and problems intended to serve as a control. If disordered gambling is found to be stigmatized it may stimulate research into combating the effects of stigma by the development of effective interventions to reduce public stigma and to address this issue in treatment programs for disordered gamblers.

What is disordered gambling?

Gambling refers to activities that risk something of value on the outcome of a chance event (Korn & Shaffer, 1999). While many individuals participate in such activities without experiencing problems, approximately 5% of the Canadian population experiences gambling problems (Shaffer, Hall, & Vander Bilt, 1999). Gambling problems can range from financial loss, to significant psychological distress, to relational problems, and problems with the law (Argo & Black, 2004). Approximately 2% of Canadians may be diagnosed with pathological gambling, characterized by "persistent and recurrent maladaptive gambling behaviour" (American Psychological Association [APA], 2000, p. 674). Pathological gambling has been formally considered a mental illness since first included in the Diagnostic and Statistical Manual (DSM) in 1980 (APA, 1994). While not a diagnosable condition, the term 'problem gambling' has been used to describe subclinical gambling whereby gamblers report distress but do not meet sufficient criteria to warrant diagnosis (Toce-Gerstein, Gerstein, & Volberg, 2003). Together, pathological gambling and problem gambling have been described as 'disordered.'

What is stigma?

Stigma refers to the devaluation of a person in a particular social context based on the perceived presence of a negative attribute or social identity (Crocker, Major, & Steele, 1998). It is evidenced by the existence of one or more components of the stigma process; including cues, stereotypes, prejudice, and discrimination (Corrigan, 2004; Link & Phelan, 2001; Teachman, Wilson, & Komarovskaya, 2006). These four social-cognitive processes roughly correspond to perception, cognition, affect, and behaviour. First, cues or signals are necessary to elicit stereotypes and may include symptoms,

physical appearance, social skills deficits, or labels (Corrigan & Kleinlein, 2005). A stereotype is a set of expectations or beliefs held of people based solely on their group membership (Jones, 2002). Prejudice refers to negative attitudes towards a social group, and frequently leads to the behavioural reaction of discrimination (Crocker, et al., 1998; Jones, 2002). Finally, discrimination is the end result and a behavioural manifestation of stigma. Members of a stigmatized group may be discriminated against with avoidance and social distance.

Causes of stigma

There are several theories that address why particular conditions are stigmatized. Two theories of interest are attribution theory (Weiner, 1995) and the danger appraisal hypothesis (see Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003). Attribution theory maintains that discriminatory behaviour is the end result of a cognitive-emotional process: attributions elicit emotional reactions that in turn generate punishing or helping behaviours (Weiner, 1995). Specifically, an individual's attributions regarding cause and controllability of a condition may lead to inferences about responsibility if causes are seen to be under the individual's control. Inferences of internal origin, controllability and responsibility may result in anger and punishing behaviour, while attributions of external or uncontrollable causes lead to pity and helping behaviour (Corrigan et al., 2003). Causes for mental illness examined previously include a chemical imbalance in the brain, God's will, stress, a genetic or inherited problem, bad character, and the way the person was raised, (Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999; Martin, Pescosolido, & Tuch, 2000).

One increasingly common stereotype regarding individuals with mental illness is that they are dangerous (Phelan, Link, Stueve, & Pescosolido, 2000). Perceived dangerousness has been found to be associated with desire for social distance (Link et al., 1999) and to mediate the effects of labeling individuals with mental illness (Martin et al., 2000). According to the danger appraisal hypothesis, dangerousness is associated with greater desired social distance because it elicits fear (Corrigan et al., 2003).

There are other factors that influence whether conditions are stigmatized. Stigma has been found to vary with individual differences, including sex, age, political orientation, and ethnicity of the perceiver. Some researchers have hypothesized that women are generally more tolerant and more accepting of individuals with stigmatizing conditions, yet what little research has been conducted has produced mixed results (Schnittker, 2000). One study has found a gender symmetry effect, such that women respondents were more willing to interact with women with a mental illness and men were more willing to interact with men with a mental illness (Schnittker, 2000). Research has also determined that older individuals tend to judge problem gambling (Rockloff & Schofield, 2004) and mental illness (Link & Cullen, 1986; Link, Yang, Phelan, & Collins, 2004) treatment-seekers more negatively than younger individuals. Finally, past research has also linked political conservatism to prejudice and discrimination (Jones, 2002; Lambert & Chasteen, 1997).

Culture is an additional factor impacting whether a particular condition is stigmatized. A condition may be severely stigmatized in one culture and completely accepted in another (Room, Rehm, Trotter, Paglia, & Üstün, 2000). Cultural variables such as values, beliefs, and level of acculturation may all play a role in whether an

individual initiates gambling activity or develops disordered gambling. There are also cultural differences in stereotypes (Jones, 2002) and stigmatization of different forms of mental illness (Room et al., 2000).

Stigma remedies

Contact is one widely researched anti-stigma strategy and refers to the exposure individuals may have had with members of or stigmatized group. In its simplest form, the contact hypothesis (Allport, 1954) maintains that contact between members of different groups will improve inter-group relations (Jones, 2002). However, this theory has received mixed support. Some have found that contact, or familiarity, increases stigma (Corrigan et al., 2005), whereas others have found that those with greater exposure to stigmatized individuals have more favourable attitudes towards them (Corrigan, Edwards, Green, Diwan, & Penn, 2001; Link & Cullen, 1986; Penn et al., 1994).

Stigma research methodology

Vignettes describing individuals with the conditions of interest are one of the most common methodological approaches employed in the study of stigma (Hinshaw & Ciccetti, 2000; Link et al., 2004). Benefits of vignettes include the presentation of a more elaborate stimulus (e.g., a description of symptoms) rather than a psychiatric label and possible administration in general population survey research that allows for greater external validity (Link et al., 2004). Additionally, with vignettes it is possible to determine participants' responses to the same hypothetical person, rather than relying on idiosyncratic conceptions of persons with the particular health condition. Finally, vignettes also allow for a practical operationalization of a disordered gambler for those who may be unfamiliar with the condition. However, one limitation with the use of

vignettes is that they are hypothetical (Hinshaw & Ciccetti, 2000). Not only is it unlikely that an individual would observe all symptoms required for diagnosis of a particular mental illness, vignettes lack situational and nonverbal cues that may contribute to real-life responses to persons with mental illness (Link et al., 2004). Despite these concerns, the benefits of vignettes outweigh limitations and researchers continue to report significant findings using this research method.

Perhaps the most common measure of stigma is attitudinal social distance. Social distance refers to an individual's willingness to interact with a stigmatized person in different types of relationships (Link et al., 2004) and has been used as a proxy for discrimination. Social distance has been measured both behaviourally and attitudinally. One behavioural social distance measure asked participants to select one of several seats varying in distance from an individual believed to have a stigmatizing condition (Penn & Corrigan, 2002). More commonly, attitudinal measures assess how willing one would be to engage with a stigmatized individual in relationships of varying levels of intimacy. However, attitudinal measures have been criticized on several grounds.

Criticisms of the social distance construct concern social desirability and inconsistent prediction of actual behaviour from attitudes and reported intentions (Link et al., 2004). Social desirability is a form of response bias that reduces the likelihood that individuals will endorse negative and prejudicial statements about stigmatized individuals out of a desire to be accepted by others ("faking good;" Loo & Thorpe, 2000). Social desirability bias is a frequent concern with self-report research. However, it is difficult to assess private stereotypes (cognitions) and prejudice (affect) without self-report data. Although it has been argued that social desirability bias does not appear to be extreme in

stigma research (Link et al, 2004), it is prudent to ensure its absence. Research has been mixed regarding whether attitudinal social distance is truly predictive of actual behaviour. However, one widely quoted meta-analysis has determined that attitudes do "significantly and substantially predict future behaviour" (Kraus, 1995, p.58).

Stigma research with mental illness and addictions

Research has clearly indicated that stigma is associated with mental illness and addiction. Commonly held stereotypes about those with mental illness include beliefs that they are dangerous, incompetent, immoral, irresponsible, unpredictable, unlikely to recover, and to blame for their condition, (Corrigan, 2004; Corrigan et al., 2000; Holmes, Corrigan, Williams, Canar & Kubiak, 1999; Watson & River, 2005). Controllability, or responsibility, attributions (Weiner, Perry, & Magnusson, 1988) and perceived dangerousness (Link et al., 1999) have both been associated with attitudinal social distance in these populations.

Controllability attributions are frequently held for those with psychotic disorders, substance abuse disorders, and other mental illnesses. Persons with mental illnesses are considered responsible and blameworthy for their disorder as developing or overcoming the mental illness is believed to be within the person's control (Corrigan et al., 2003; Martin et al., 2000; Weiner et al., 1988). The general public also discriminates among disability groups, viewing persons with mental illness more harshly (Corrigan et al., 2000; Weiner et al., 1988). Wiener and colleagues (1988) found individuals with mental-behavioural conditions were perceived to be more responsible, less worthy of pity, and to have a worse prognosis than individuals with physical illnesses. More recently, research has indicated that this discrimination occurs within the spectrum of mental illness and has

found that substance abuse and psychoses are perceived more negatively than other mental illnesses. Substance dependence is frequently the most stigmatized (Corrigan et al., 2005; Link et al., 1999; Martin et al., 2000; Weiner et al., 1998) presumably due to perceptions of controllability (Rasinski et al., 2005). Level of stigma has also been found to vary by substance, such that those with drug addictions are perceived more negatively than those dependent on alcohol, and tobacco addiction is seen as particularly benign (Cunningham, Sobell, & Chow, 1993).

Dangerousness appraisals are also frequently made of individuals with psychoses and other mental illnesses. Schizophrenia and alcohol dependence have been found to be associated with high perceived dangerousness (Crisp, Gelder, Rix, Meltzer, & Rowlands, 2000; Martin et al., 2000; Pescosolido, Monahan, Link, Stueve, Kikuzawa, 1999). Dangerousness has been found to be particularly salient for individuals with substance dependence as this condition has been widely associated with crime and violence (Rasinski et al., 2005). As such, fear of harm may be associated with stigmatization of individuals with substance dependence (Rasinski et al., 2005).

Addictions are additionally stigmatized due to the fact that they have been characterized by a moral model in the past (Room, 2005). Consistent with this, substance and behavioural addictions have been labeled a "disease of volition" (Campbell, 2003; Valverde, 1998). More recently, the medical model has been widely adopted and substance dependence has been characterized as a disease (Miller & Hester, 2003). The presence of substance abuse and dependence in the DSM (APA, 2000) further supports these conditions as mental illnesses as opposed to character deficits. Public perception has likewise begun to change, with a substantial number of Americans associating drug

(43.5%) and alcohol (48.7%) abuse with mental illness (Link et al., 1999). However, Room (2005) points out that subscribing to a moral model or disease model of alcoholism are not necessarily mutually exclusive.

Disordered Gambling

According to the above research on mental illness and addictions, it seems likely that individuals with disordered gambling will be stigmatized and perceived negatively, particularly as disordered gambling has been considered both a mental illness and an addiction. As a behavioural addiction, disordered gambling may be perceived as particularly controllable. It is also possible perceived dangerousness may play a role in stigmatization as there is an established link between pathological gambling and criminal behaviour (Rosenthal & Lorenz, 1992). Some studies have inquired as to whether survey respondents are familiar with a person who has had a gambling problem, with problems associated with disordered gamblers, or with people who have sought help to address a gambling problem. One study determined that 32% of Canadians knew a problem gambler, defined as someone who spends more than they can afford on gambling (Azmier, 2000). However, as attitudes towards problem gamblers were not measured it is uncertain as to whether the contact hypothesis would be supported for this condition.

The Present Study

The present study aims to determine the degree of disordered gambling stigma by applying research methods devised to assess mental illness and substance addiction stigma. Specifically, attitudinal social distance from disordered gamblers is assessed using vignettes and compared with other stigmatized health conditions. The following four hypotheses are derived from past research and are based on attribution theory

(Weiner, 1986), the danger appraisal hypothesis, and the contact hypothesis (Allport, 1954).

It was hypothesized that participants would desire greater social distance from the disordered gambling condition than from the cancer and the control conditions (hypothesis 1). Exploratory analyses were conducted to investigate the relationship between levels of stigma for disordered gambling, schizophrenia, and alcohol dependence. Controllability attributions were expected to be moderately positively correlated with social distance scores, such that higher perceived controllability would be associated with greater desired social distance and low controllability would be associated with less social distance (hypothesis 2). Dangerousness attributions were expected to be moderately positively correlated with social distance scores, with greater dangerousness resulting in greater social distance (hypothesis 3). Finally, consistent with the contact hypothesis, familiarity was hypothesized to be negatively correlated with level of stigma, such that greater familiarity with individuals with a gambling problem would result in lower attitudinal social distance and less familiarity would result in greater desired social distance (hypothesis 4).

Method

Participants

Two hundred forty-nine participants (118 men and 131 women), averaging 20.8 years old (SD = 4.7, range 16-52), were recruited from the Psychology Department's Research Participation System (RPS) at the University of Calgary. Students were granted partial course credit for their participation in "a study on attitudes towards health conditions." Participants were not informed that disordered gambling was of particular

interest in order to avoid pre-selecting those with prior interest in gambling or stigma. Informed consent was obtained, with none refusing consent. Groups of 8-34 students were asked to complete paper and pencil questionnaire measures related to attitudes toward persons with five stigmatizing conditions: cancer, schizophrenia, alcohol dependence, disordered gambling, and a no-diagnosis 'troubled' control condition with subclinical problems and worries.

Sample size requirements were determined by a priori power analyses conducted with a general power analysis program, GPOWER (Erdfelder, Faul, & Buchner, 1996), and was based on hypotheses one. A mixed ANOVA power analysis indicated that 155 participants were needed to detect a medium effect ($f^2 = 0.078$) with $\alpha = 0.05$ and power = 0.80 (Cohen, 1992; Erdfelder et al., 1996). To be conservative, this number was rounded to 200 participants. A sample size of 200 provided sufficient power for hypothesis two with an expected medium effect size. An additional 49 participants were run due to a greater supply than demand for participants through the RPS. The final sample of 249 was more than sufficient to test all hypotheses.

Procedure

Prior to participant recruitment, ethics approval was obtained from the Conjoint Faculties Research Ethics Board at the University of Calgary (see Appendix A). Informed consent was obtained (see Appendix B) and participants were advised that they could withdraw from the study at any time without academic penalty. Anonymity was emphasized in order to minimize the likelihood of a social desirability bias. Participants then completed the questionnaire package that included in order of presentation: a demographic questionnaire, a social desirability measure (Paulhus, 1988), vignettes

describing individuals with five health conditions each followed by questions concerning perceived causes of the condition, a controllability item, a perceived dangerousness item, and an attitudinal social distance scale. Vignettes were counterbalanced with the aid of a randomly detemined standard Latin square. Five orders were generated, in which order was random but vignettes occurred in each position once (see Appendix C). The gambling vignette was then presented a second time followed by the Attribution Questionnaire Short form ([AQ-SF], Watson et al., 2004), the Devaluation-Discrimination Scale (Link, 1987), the Level of Contact Report (Holmes et al., 1999), an involvement in gambling checklist, and the Problem Gambling Severity Index (PGSI) of the Canadian Problem Gambling Index (Ferris & Wynne, 2001).

At the conclusion of the study, participants received a debriefing form (see Appendix D) that made the purposes of the study explicit and included references for resources to learn more about gambling and stigma. The Alberta Problem Gambling Helpline telephone number was also provided for participants concerned they might have a gambling problem. Appendix E provides a summary of the forms and measures included in the questionnaire package in their order of presentation.

Measures

Demographic questionnaire. Demographic information (Appendix F) was collected to examine potential moderator variables. Participants were asked to indicate their sex, age, ethnicity, and political orientation. Political orientation categories were taken from Kemmelmeier, Danielson, and Basten (2005).

Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1988). The Impression Management (IM, see Appendix G) subscale of the BIDR consists of 20 items

designed to assess intentional deception in order to present a socially desirable image (Leite & Beretvas, 2005). It is answered on a 7 point Likert-type scale ranging from not true (1) to very true (7) and was scored using the continuous scoring method (Paulhus, 1988), resulting in a score ranging from 10-140. Past research with continuous scoring has produced Cronbach's alphas in the range of .73 to .86 (Stober, Dette & Musch, 2002). The present study attained an alpha of .76.

Vignettes. Vignettes (Appendix H) were used to compare health conditions, including pathological gambling, alcohol dependence, schizophrenia, cancer, and an individual with subclinical worries and problems intended to serve as a control. Vignettes for the no-diagnosis control, the individual with schizophrenia, and the person with alcohol dependence are based on those used by Link and colleagues (1999) but are modified for use with a within subjects design. Both the schizophrenia and alcohol dependence conditions were originally created based on the DSM-IV (APA, 1994). A cancer vignette was constructed and included to compare and contrast a physical illness to several mental illnesses with regards to level of stigmatization. A vignette was also constructed to depict a person who engages in pathological gambling also based on the DSM (APA, 2000). As only five of 10 criteria must be met to receive a diagnosis of pathological gambling, a vignette depicting a person with all 10 criteria was deemed inappropriate. To aid in selection of criteria for a 'typical' individual with disordered gambling, the literature was consulted to determine the most common criteria for someone with this condition. Toce-Gerstein et al., (2003) determined that the most common criteria included loss of control, tolerance, withdrawal symptoms, needing to be bailed out financially, and risking social relationships.

Perceived causes (Link et al., 1999; Martin et al., 2000). Past research has used a 6-item Likert-type scale assessing potential causes for a mental health condition. These six causes include: the person's own bad character, a chemical imbalance in the brain, the way the person was raised, stressful circumstances in the person's life, a genetic or inherited problem, or God's will. Items are phrased "in your opinion, how likely is it that [NAME's] situation might be because of [CAUSE]" and are rated on a 4-point scale from "very likely" (4) to "very unlikely" (1). This scale is found in Appendix I.

Controllability attributions. Controllability is measured with a 4-point Likert-type item (Appendix J): "Is [NAME's] situation controllable?" Response categories included "definitely," "somewhat controllable," "somewhat uncontrollable," "definitely not."

Perceived dangerousness. Perceived dangerousness is measured with a 4-point Likert-type item: "How likely is it that [NAME] would do something violent to other people?" This item has been used in several studies and has used the response categories "not likely at all," "not very likely," "somewhat likely," and "very likely" (Link et al., 1999; Martin et al., 2000). This item is also included in Appendix J.

Social Distance. Psychometrically, social distance scales generally tend to show good to excellent internal-consistency ranging from $\alpha = 0.75$ to greater than 0.90 (Link et al., 2004). Evidence of validity is limited to construct validity in that expected patterns of association have been found. The six social distance items used in this study (Appendix K) have been modified to apply to disordered gambling and are scored on a 4-point scale, with higher values indicating greater desired social distance. A sum score is calculated resulting in a social distance index that ranges from 6 to 24. Values above the half-way point are considered to be indicative of social distance, with higher numbers indicating

greater social distance. Past studies have determined reliability for these items to be excellent (Cronbach's $\alpha = 0.87$). Alphas for the different conditions in this sample are as follows: cancer $\alpha = .85$, schizophrenia $\alpha = .87$, alcohol dependence $\alpha = .82$, control $\alpha = .89$, disordered gambling $\alpha = .84$.

Attribution Questionnaire Short Form (AQ-SF; Watson et al., 2004). The AQ-SF (Appendix L) consists of eight items measuring pity, dangerousness, fear, responsibility, segregation, anger, help, and avoidance measured on a 9-point Likert-type scale. It consists of the items from a 27-item attribution questionnaire that loaded most strongly on the above-mentioned eight factors. In the original, participants rated items after responding to a brief vignette about a man with schizophrenia. The factor structure and reliability of the original AQ have been validated in two confirmatory factor analyses (Corrigan et al., 2003; Corrigan et al., 2002).

Devaluation-Discrimination Scale (Link, 1987; Link et al., 1991). The Devaluation-Discrimination scale (Appendix M) consists of twelve 6-point Likert-type items, modified for disordered gambling, which assess the degree respondents anticipate devaluation and discrimination of individuals with a history of psychiatric treatment from 'most people.' Half of the items are reverse scored. Items are averaged, with scores significantly higher than the midpoint of the scale indicating devaluation and discrimination of mental patients. For the purpose of this study the term mental patient was replaced with "problem gambler." The scale is well established psychometrically and in relation to other measures (Ritsher, Otilingam, & Grajales, 2003). Past research has found this measure to have good internal consistency ($\alpha = .82$, Link et al., 1991; $\alpha = .84$, Ritsher et al., 2003) and that most individuals believe that mental patients are devalued

and discriminated against (Link, 1987; Link et al, 1999). Internal consistency for this sample was also good (α =.82).

Level of Contact Report (Holmes et al., 1999). The Level of Contact Report (Appendix N) is a 12 item checklist that describes varying levels of intimacy with an individual with mental illness, ranging from the most intimate contact ("I have a mental illness") to the least intimate contact ("I have never observed a person that I was aware had a serious mental illness"). For the purposes of this study the measure was adapted to refer to someone with 'a gambling problem' rather than 'a mental illness.' Participants are asked to check each situation that has occurred in their lifetime. Situations are rank ordered with higher values indicating greater contact and the measure is scored by taking the highest rank score endorsed. Rank scores were determined by three experts in psychiatric disability and the rank order was later validated by a sample of 100 research participants. Holmes and colleagues (1999) report an inter-rater reliability of 0.83.

Involvement in Gambling Checklist. An involvement in gambling checklist (Appendix O) was included in order to ascertain participation in gambling activities. The gambling behaviours checklist has been included in previous research conducted at the University of Calgary and was based on work by Ferris and Wynne (2001).

Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). The PGSI (Appendix P) was included for exploratory purposes as personal gambling problems may affect participant scores on other measures. The PGSI is frequently used to screen for possible gambling problems and assesses domains such as guilt or anxiety, financial problems, and chasing (i.e., trying to win back losses). Items are rated on a 4-point Likert-type scale from never (0) to almost always (3). Cut-points result in four categories

indicating increasing levels of gambling problems: non-problem (0), low risk (1-2), moderate risk (3-7), and problem gambler (8-27). Past research has taken the latter two categories to indicate moderate and severe problem gambling respectively (Cox, Yu, Afifi, & Ladouceur, 2005).

Results

Preliminary Analyses

All analyses were conducted in Statistical Package for the Social Sciences (SPSS) 14.0. Descriptive statistics revealed the majority of participants were women (53.6%), European (58.6%), liberal (28.9%), single (92.8%), and somewhat religious, seldom attending places of worship (31.3%). Age of participants ranged from 16 to 52 ($M = 20.7$, $SD = 4.7$). Participants engaged in four different gambling activities on average ($M = 4.3$, $SD = 2.7$). One hundred thirty-eight participants (55%) completed the Problem Gambling Severity Index, indicating they gambled more than two times over the previous year. Of these participants, only 1 (0.4%) qualified as a problem gambler, 21 (8.4%) were at moderate risk of developing problem gambling, 55 (22%) qualified as low risk, and 60 (24%) were non-problem gamblers. Complete demographic characteristics of the sample are presented in Appendix Q and gambling activity frequencies are listed in Appendix R.

Participants indicated 'most people' devalue and discriminate against disordered gamblers. A one sample t-test comparing the mean devaluation-discrimination score ($M = 3.6$) to the midpoint of the scale (3.5) was significant ($t(248) = 2.90$, $p = .004$).

Results of the AQ-SF revealed participants attributed high levels of responsibility for the problem to disordered gamblers ($M = 6.3$, $SD = 2.0$), felt both anger ($M = 4.2$, SD

= 2.3) and pity (M = 4.2, SD = 1.9) towards them equally, and endorsed low levels of fear (M = 3.2, SD = 1.9) and desire for segregation (M = 2.6, SD = 1.9).

Social desirability could have accounted for some of the variance in social distance ratings. However, a one-way Analysis of Covariance (ANCOVA) was not conducted as the BIDR did not correlate significantly with social distance. Therefore social desirability was not a covariate and was not included in any subsequent analyses.

Exploratory one-way repeated measures ANOVAs revealed participants indicated stressful life circumstances and bad character were equally likely causal factors in the development of disordered gambling. In decreasing order, participants endorsed, yet considered it somewhat less likely, that disordered gambling was caused by the way the person was raised, a chemical imbalance in the brain, and genetic or inherited causes. God's will was considered least likely to cause disordered gambling, with the mean falling below the centre of the scale (M = 1.3, SD = 0.6). Bad character was equally highly endorsed for disordered gambling and alcohol dependence. Means, standard deviations, and results from one-way repeated measures ANOVAs for the six perceived causes of health conditions may be found in Appendix S.

Participants' level of contact with problem gamblers and personal gambling behaviour was examined. Familiarity with problem gamblers, as indicated by percent endorsement of level of contact items, is found in Appendix T. Briefly, 89.6% of participants have watched a movie or television show depicting a problem gambler, 16.5% indicated a friend of the family has a gambling problem, 12.9% had a relative with a gambling problem, 9.6% had a co-worker with a gambling problem, and 2.4% provided services or treatment to individuals with gambling problems.

Principle Analyses

Hypothesis 1. A 2 (sex) x 5 (health condition) x 5 (order) mixed ANOVA was conducted to evaluate the effect of health condition on attitudinal social distance. Independent variables included sex (male or female), health condition (schizophrenia, alcohol dependence, pathological gambling, cancer, and no-diagnosis control), and order (1, 2, 3, 4, 5). The dependent variable was attitudinal social distance. Two hundred forty-nine participants (118 men, 131 women) rated vignettes describing individuals with all health conditions on the social distance measure. It was hypothesized that individuals would desire higher social distance from the individual described in the pathological gambling vignette than from the cancer and no-diagnosis control condition vignettes.

Mauchly's Test of Sphericity was significant for the main effect of health condition ($W = .849$, $p < .001$), therefore a Greenhouse-Geisser correction was applied. The results of the ANOVA indicated a significant main effect for condition $F(3.71, 886.13) = 443.90$ $p < .001$, partial $\eta^2 = .65$, and for sex $F(1, 239) = 4.07$, $p < .05$, partial $\eta^2 = .02$. A significant condition by sex interaction $F(3.71, 886.13) = 3.37$, $p < .05$, partial $\eta^2 = .01$, and a significant condition by order interaction $F(14.83, 886.13) = 3.30$, $p < .001$, partial $\eta^2 = .05$ were also found. The remaining effects were not significant. Appendix U presents a summary of all F tests conducted for the 2 x 5 x 5 ANOVA.

The main effect of sex revealed women ($M = 7.5$, $SD = 3.6$), in general, desired less social distance than men ($M = 8.2$, $SD = 3.6$). The main effect of condition is illustrated in Figure 1. Follow up a priori contrasts in keeping with hypothesis one revealed that participants desired more social distance from individuals with disordered

gambling than individuals with cancer ($F(1, 239) = 724.95$, $p = > .001$, partial $\eta^2 = .75$) or in the control condition ($F(1, 239) = 395.13$, $p = > .001$, partial $\eta^2 = .62$).

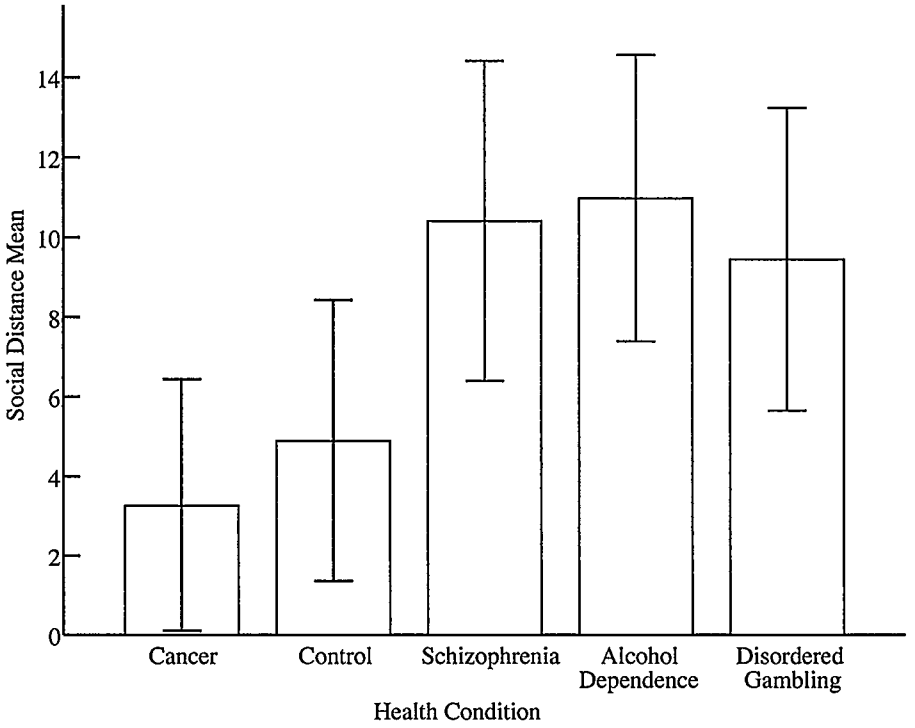

Figure 1. Main Effect of Condition for Social Distance Means

Follow up analyses of the condition by sex interaction revealed a significant effect of condition for both men and women. Furthermore, men desired greater social distance than women from individuals with cancer only, as sex differences for schizophrenia and the control condition were no longer significant after the Bonferroni correction was applied. Men and women also desired equal social distance from individuals with disordered gambling and alcohol dependence. Means, standard deviations, and independent-samples *t* tests are included in Appendix V.

Follow up analyses of the condition by order interaction revealed that the effect of condition was significant at each order. However, there was only an order effect for

cancer. These means, standard deviations, one-way repeated measures ANOVAs and pairwise comparisons are also found in Appendix V.

Exploratory Moderator Analyses. Potential moderators considered included age, religiosity, political orientation, and ethnicity. Moderators were analyzed as between-subjects factors in Mixed ANOVAs. With the Greenhouse-Geisser correction applied, age (16-33, 34-52) F (1, 231) = .42, p = .656, religiosity (not at all, somewhat, very) F (7.38, 851.87) = .98, p = .133 and political orientation (left, middle of the road, right) F (11.02, 833.54) = 1.44, p = .150 did not significantly interact with social distance. When ethnicity (European vs. non-European) was included as a between-subjects factor, a significant main effect of ethnicity F (1, 220) = 23.12, p < .001 and a condition by ethnicity interaction F (3.67, 806.43) = 2.89, p = .025 was found, suggesting the importance of this variable as a moderator. Examination of means for the main effect revealed that Europeans desired less social distance than non-Europeans. Follow-up t-tests revealed non-Europeans desired greater social distance than Europeans from all conditions except schizophrenia (see Appendix W for the results of ANOVA and to Appendix X for means, standard deviations, and simple effects).

Hypotheses 2 and 3. Pearson product moment correlation coefficients were computed to determine the degree to which dangerousness and controllability attributions were associated with attitudinal social distance (see Table 1). It was predicted that both attributions would be positively correlated with social distance. First, dangerousness attributions were correlated with social distance for schizophrenia (r = .45, p < .001), disordered gambling (r = .49, p < .001), the control condition (r = .30, p < .001), cancer (r = .31, p < .001), and alcohol dependence (r = .32, p < .001). Individuals that perceived

individuals with a particular condition to be dangerous desired greater social distance. Those that did not believe individuals to be dangerous desired less social distance.

Table 1.

Correlations of Social Distance Scores with Dangerousness and Controllability Attributions for Each Health Condition

	Dangerousness Attributions		Controllability Attributions	
Condition	*r*	*p*	*r*	*p*
Cancer	.31***	.000	-.06	.369
Control	.30***	.000	-.17**	.009
Schizophrenia	.45***	.000	-.25***	.000
Disordered Gambling	.49***	.000	-.16*	.010
Alcohol Dependence	.32***	.000	-.05	.475

Note. $N = 249$
* $p > .05$. ** $p > .01$. *** $p > .001$.

When controllability attributions were examined there were small significant negative correlations with attitudinal social distance for the disordered gambling ($r = -.16$, $p < .05$), schizophrenia ($r = -.25$, $p < .001$), and the control conditions ($r = -.17$, $p < .01$). Participants who perceived disordered gambling, schizophrenia, and the control condition as more controllable desired less social distance. Those that perceived these conditions as less controllable desired more social distance. These correlations were not in the predicted direction.

Hypothesis 4. Familiarity was also hypothesized to be correlated with level of stigma. Greater familiarity with individuals with a gambling problem was expected to be associated with lower attitudinal social distance and less familiarity was expected to result in greater desired social distance. Contrary to expectations, a Pearson product

moment correlation coefficient revealed familiarity was not significantly associated with social distance for disordered gambling ($r = .06$, $p = .378$) in this sample.

Discussion

Is disordered gambling stigmatized?

The results of the present study provide support for recent claims that disordered gambling is a stigmatized condition, at least for male problem gamblers. There was clearly a large main effect of condition; attitudinal social distance scores differed between disordered gambling, alcohol dependence, schizophrenia, cancer, and the control condition. In support of hypothesis one, both male and female university students desired more social distance from men with a gambling problem than from cancer patients and individuals without a mental illness. The order that conditions were presented to the participant only impacted the degree to which cancer was stigmatized and did not appear to impact desired social distance from disordered gambling. Similarly, there was no sex difference in participants' desired social distance from male disordered gamblers. While these findings require replication, they certainly suggest that disordered gambling is a stigmatized condition and that the degree to which it is stigmatized may be unaffected by either order of presentation or participant's sex.

Moderators of stigma

The results of this study suggest both context (i.e., order of appearance) and individual differences (i.e., participant sex and ethnicity) appear to play a role in the degree to which some conditions are stigmatized. In the case of cancer, the order by condition interaction suggested that higher ratings occurred when cancer came first. This may be a result of 'benchmarking.' It makes intuitive sense that individuals base

responses on immediately preceding conditions when presented with two or more conditions. Future studies might explore why this occurred in some cases but not others.

The interaction of sex with condition also requires further examination. Future research might clarify why women desire less social distance than men from individuals with cancer. In general, one might hypothesize that women are more nurturing and relational and therefore are more open to individuals suffering health conditions. However, this does not explain why women did not also desire less social distance than men in the remaining conditions. An exploration of why sex differences are not found for certain conditions may also be an interesting line of research.

Finally, exploratory post hoc analyses indicated ethnicity also appears to be a significant predictor of social distance. The current data preclude any firm conclusions regarding the effect of ethnicity due to participant diversity and insufficient cell sizes for certain ethnic groups. Furthermore, the concept of ethnicity is complex, somewhat abstract and requires greater clarification. Conceptions of ethnicity are often confounded with race, nationality, and geographic origin. Future research should be explicit regarding the construct being measured and should measure the cultural beliefs and values implied with the use of the term ethnicity rather than geographic origin.

Causes of disordered gambling stigmatization

When attributions of controllability and dangerousness were considered, perceptions of dangerousness were associated with stigmatization, while perceptions that disordered gambling is controllable were significant but were not in the predicted direction and accounted for a minimal amount of variance. As such, only the dangerousness appraisal hypothesis was supported. Overall, male disordered gamblers

were perceived to be somewhat dangerous, and those that perceived them as dangerous desired greater social distance than individuals who did not. Similar results were found for all other conditions.

The results for controllability attributions are inconsistent with past research and were unexpected. Possible explanations for this unexpected finding may be due to measurement limitations, as only a single Likert-type item was used. Secondly, the item did not differentiate onset controllability (control over developing the condition) from offset controllability (control over recovery). Finally, stigma may result more from perceived responsibility than controllability per se. Past research has not always made a clear distinction between the two constructs (eg., Weiner et al., 1988). The AQ-SF contained an item measuring responsibility and disordered gamblers were seen as highly responsible for their condition. However, as this measure was not applied to the other conditions it is not possible to determine if participants deemed disordered gamblers to be particularly responsible for their condition in comparison to other conditions. Future researchers may wish to include measures of responsibility rather than controllability.

Of the list of possible causes, participants believed that stressful life circumstances and bad character were most likely to be responsible for disordered gambling. Other causes endorsed included the way the person was raised and a chemical imbalance in the brain. Participants rated it less likely that genetics were responsible for disordered gambling, and that God's will was unlikely to cause disordered gambling. Interestingly, bad character was rated most likely to cause disordered gambling and alcohol dependence when compared with the other health conditions.

Combating stigma

Much research has been conducted to determine effective methods of reducing public stigma (stigma held by the general public). Three methods frequently studied are protest, education, and contact (Corrigan et al., 2000). Many authors have found that for a variety of mental health disorders, familiarity generally results in lower levels of desired social distance (Corrigan et al., 2001; Link & Cullen, 1986; Penn et al., 1994). This finding was not replicated with disordered gambling. It may be that this construct was not measured adequately. Alternatively, conditions of previous contact may require further qualification, such that the quality of interaction and the resulting perceptions of the disordered gambler are measured in addition to 'familiarity.' Although familiarity does not appear to influence desired social distance from male disordered gamblers in this study, these findings do not allow the conclusion that contact is unable to reduce stigma towards disordered gamblers as only current level of stigma was measured and an intervention was not conducted.

It appears a substantial proportion of individuals are familiar with disordered gambling to some degree. Most people (89.6%) have viewed a television show or movie depicting an individual with disordered gambling. Fewer have watched a documentary regarding the condition (39%). The accuracy of the media portrayal of disordered gambling is questionable. Media images may exacerbate or ameliorate disordered gambling stigma. As education is a second possible method for reducing stigma, using the media as an educational tool may also reduce stigma associated with disordered gambling. Future research may wish to examine familiarity further, or to develop and test other forms of stigma reduction strategies specific to disordered gambling.

Limitations

Although these results support that disordered gambling is stigmatized in males, there are several methodological limitations pertaining to generalizability, design, and measurement that, if remedied, would strengthen this conclusion. A university sample permits limited generalizability of these findings. Age, religiosity, and political orientation were not found to impact social distance scores in this sample. However, this sample contains a restricted range for participants' ages and may not be representative of the cultural and societal context (see Gallander Wintre, North, & Sugar, 2001). University students are typically younger, hold upper socio-economic status, and may comprise a more liberal sample politically than the broader culture. However, university students' attitudes are of interest in their own right as there are higher prevalence rates for disordered gambling in college age samples (Lesieur et al., 1991). One might expect more favourable attitudes towards problem gambling in a population where gambling is a common activity and a high percentage of peers struggle with problem gambling. Thus, while these results may not generalize to other populations, the finding that disordered gambling is stigmatized among university students is important.

These results also may not generalize to other cultures or subcultures within broader North American society. Social context also plays a role in the extent to which a condition is stigmatized. The main effect of ethnicity supports this perspective. However, culture was not measured and should be examined in future research. The perspectives of subcultures that are more (e.g., East Asian communities; Raylu & Oei, 2002) or less (e.g., Muslim communities; see Quran 2:219 and Quran 5:90-91) condoning of gambling activity may be of particular interest for future research. This initial study into disordered

gambling stigma should be replicated with a more representative general population sample if greater North American society is to be measured, in addition to any other relevant cultures of interest. Future work with a general population sample should employ probability sampling and stratification strategies required to ensure good external validity.

Finally, these results may not generalize to women problem gamblers as vignettes containing only male characters were used. This decision was made reluctantly and is a limitation of the within-subjects design of this study. As participants were responding to five health conditions, to include women would have resulted in ten conditions and even greater difficulty controlling for order effects. A between subjects design would have allowed for only one additional condition and relatively few additional participants to compare men and women with disordered gambling. The use of only male vignettes was not ideal, yet was consistent with previous research and with the greater prevalence of disordered gambling in men. Design limitations and a desire to be consistent with previous research necessitated the use of male vignettes; however, some authors have suggested that substance dependant females are more stigmatized than males (Substance Abuse Network of Ontario, 1999; Blume, 1991; Copeland, 1997; Schober & Annis, 1996). Others have found women respondents are more willing to interact with women with a mental illness and men with men (Schnittker, 2000). These hypotheses regarding sex of the stigmatized individuals could be examined for disordered gambling by varying the sex of the individual depicted in the vignette in future research.

The within-subjects design resulted in the above-noted limitation, yet was necessary for a sufficient sample size to obtain adequate power, to reduce participant

strain, and was consistent with past research. However, the within-subjects design is also an asset in that it has highlighted the importance of context on desired social distance. The effect of order of presentation of vignettes would not have been noted had a between-subjects design been used. Arguably, the presentation of several health conditions in succession is unlikely to occur in real life, calling into question the importance of the effect of order. However, the results of this study point to the importance of examining contextual factors and individual differences when studying stigma. It is not clear if these differences have been observed or even examined in past research. Past within-subjects designs have not counterbalanced or discussed order, or have claimed that conditions are stigmatized without considering contextual factors. It is misleading to conduct research on a construct so intimately connected to moderating factors such as context without also examining these variables. Future research, whether employing between- or within-subjects methodology, should consider contextual factors.

There are several additional methodological limitations of this research study pertaining to measurement. First, the stigma literature generally suffers from a lack of established and psychometrically sound measures. This may be due to the abstract nature of the construct, the diversity of disciplines that attempt to study stigma, and idiosyncratic definitions of stigma adopted by these disciplines. As such, some of the measures employed in this study, although widely applied, are lacking in psychometric rigour. At times single-item Likert-type measures are used to determine attitudes. The advantage in using these measures is that they allow for comparisons with previous research. Furthermore, using these measures was determined to be more desirable than creating new measures without any psychometric data.

Second, reliance on self-report creates the possibility of interference from social desirability bias, and does not address the fact that stereotyping and prejudice have been found to exist at an implicit level (Hinshaw & Ciccetti, 2000; Teachman et al., 2006) and may not be accessible to consciousness. While social desirability bias was examined with the IM subscale of the BIDR (Paulhus, 1988), this study does not examine implicit stigma. Instead, it requires participants to be aware of and have an accurate understanding of their beliefs regarding health conditions. The Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) uses comparative reaction times to measure stigma that is implicit (outside of conscious awareness) and has recently been applied to the study of persons with mental illness. Teachman et al. (2006) considered the stereotypes of blameworthiness, helplessness, and "badness." The use of this or a similar methodology would be informative and may also address concerns regarding social desirability.

Finally, even if participants' estimations of their beliefs are accurate, there is no guarantee that veridical attitudes will translate into behavioural indicators of stigma. Associations between attitudes and behaviour change have been found to be modest to moderate (Krauss, 1995), revealing their partial independence. While consensus has been reached that attitudes do "significantly and substantially predict future behaviour" (Kraus, 1995, p.58), further research with ecologically valid behavioural measures that supplement attitudinal measures is needed (Hinshaw & Ciccetti, 2000).

Future Directions

Whereas this research considers public stigma, research should also be conducted to confirm the existence of self-stigma. Self-stigma refers to the application of devaluation and discrimination to the self through internalization of public stigma

(Corrigan, 2004). Self-stigma has been shown to have direct impact on help seeking behaviour and adherence to treatment (Sirey et al., 2001) and may be more important to these variables than public stigma. Furthermore, it may be beneficial to be able to compare the variance in various consequences of stigma accounted for by public and self-stigma. As little research has been conducted in the area of gambling and stigma, these comparisons were beyond the scope of the current study.

Although this research is an important first step in confirming that there is public stigma associated with disordered gambling, it does not examine the crucial link as to whether stigma actually reduces treatment seeking. Previous work has linked shame and secrecy to delay in treatment seeking (Tavares et al., 2002). However, this work did not examine the perspectives of non-treatment seeking individuals and did not consider the effect of public stigma on treatment-seeking. The current project considers public stigma but does not link it to treatment seeking. Future research may consider the effect of public stigma on treatment-seeking, or the effect of self-stigma in disordered gamblers and its effect on treatment-seeking.

Finally, research into the effectiveness of particular treatment modalities for drawing individuals previously averse to treatment seeking may be warranted. Internet treatment or self-help modalities may be particularly well-suited to individuals concerned about stigmatization. The development and dissemination of these treatments, coupled with efforts to increase awareness of their existence to non-treatment seeking individuals may substantially increase treatment seeking rates. Treatment matching may also be indicated, such that individuals calling help-lines are screened for stigma concerns and receive referrals to appropriate treatment modalities. While these individuals could be

considered 'treatment seekers' as they are calling a hotline, actual attendance at a treatment session may never occur. Treatment completion rates may also be improved if concerns regarding stigma are addressed.

In summary, while some researchers have indicated that both the general public and disordered gamblers perceive stigma associated with the condition (Hodgins & el-Guebaly, 2000; Rockloff & Schofield, 2004; Tavares et al., 2002), none have examined the degree of disordered gambling stigma. Furthermore, none have examined disordered gambling stigma using research methodology employed in the study of other stigmatized conditions. A major strength of this research is that it places stigma in the context of other stigmatized conditions and the context of past stigma research.

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Appendix A

Ethics Approval

UNIVERSITY OF CALGARY
Celebrate 40 years 2006

CERTIFICATION OF INSTITUTIONAL ETHICS REVIEW

This is to certify that the Conjoint Faculties Research Ethics Board at the University of Calgary has examined the following research proposal and found the proposed research involving human subjects to be in accordance with University of Calgary Guidelines and the Tri-Council Policy Statement on *"Ethical Conduct in Research Using Human Subjects"*. This form and accompanying letter constitute the Certification of Institutional Ethics Review.

File no:	**4953**
Applicant(s):	**Jenny D. Horch**
Department:	**Psychology**
Project Title:	**Public Stigma of Disordered Gamblers: Responsibility, Dangerousness, Familiarity and Social Distance**
Sponsor (if applicable):	**SSHRC**

Restrictions:

This Certification is subject to the following conditions:

1. Approval is granted only for the project and purposes described in the application.
2. Any modifications to the authorized protocol must be submitted to the Chair, Conjoint Faculties Research Ethics Board for approval.
3. A progress report must be submitted 12 months from the date of this Certification, and should provide the expected completion date for the project.
4. Written notification must be sent to the Board when the project is complete or terminated.

Janice Dickin

Janice Dickin, Ph.D, LLB,
Chair
Conjoint Faculties Research Ethics Board

6 September 2006
Date

Distribution: (1) Applicant, (2) Supervisor (if applicable), (3) Chair, Department/Faculty Research Ethics Committee, (4) Sponsor, (5) Conjoint Faculties Research Ethics Board (6) Research Services.

Appendix B

UNIVERSITY OF CALGARY

CONSENT FORM

Investigators: Jenny Horch, B.A. (Hons), Clinical Psychology student, Department of Psychology, University of Calgary, and David C. Hodgins, Ph.D., Associate Professor, Department of Psychology, University of Calgary.
Study Title: Attitudes towards health conditions

This study has been approved by the University of Calgary Conjoint Faculties Research Ethics Board and the Psychology department of the University of Calgary. The student researcher involved in this project, Ms. Jenny Horch, is under the supervision of Dr. David Hodgins of the Psychology Department.

This consent form, a copy of which has been given to you, is only part of the process of informed consent. It should give you the basic idea of what the research project is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

What is the purpose of the study?
The researchers are examining attitudes towards several different health conditions.

What will I be asked to do?
Participation involves completing paper and pencil questionnaires concerning personality and demographic variables and reading a short description of persons with particular health conditions. You will be asked to answer questions in response to these descriptions. A second component of the study will involve being asked about your opinions, exposure to, and participation in gambling. Total time required for participation will be under one hour. Please note that it is possible to withdraw from the study at any time without penalty.

What type of personal information will be collected?
Participants will be assigned a participant number for identification which will be kept separate from their names and student numbers. Your name and student number are necessary to ensure you receive credit, however, please note that this information will be kept separate from the questionnaires you fill out and will be destroyed once credit has been awarded. Demographic variables to be asked in this study include your age, sex, marital status, employment status, education, religion, political orientation, religious involvement, and ethnicity. While providing these details is helpful to the researchers you are welcome to leave an item blank if you do not wish to answer it.

Are there risks or benefits if I participate?
In exchange for your participation in this study, you will receive credit with the University of Calgary. There are no anticipated risks to participants. Benefits of participating in this study include exposure to graduate level university research and an opportunity to learn what such a project might entail. At the completion of the study you are welcome to ask any questions you might have about the project. Your participation may also benefit

others. The results of this study may be useful in gaining an understanding of people's attitudes towards health conditions and help researchers and clinicians design programs to better the lives of those with the conditions studied.

What happens to the information I provide?
Your questionnaire and test responses will be kept confidential and your participation in this study will be completely anonymous. You are asked not to place your name or any other identifying information on the forms, and no personal information will be made available to the public that might in any way identify you. The data will be kept in a locked setting at the University of Calgary to which only the examiner and collaborating researchers will have access until they are destroyed.

Results will be available in September, 2007. The authors intend to discuss these results at a psychological conference and published them in a professional journal. Should you be interested in the results please contact Ms. Jenny Horch and she will be happy to send you information once the study is complete.

What does my signature on this form mean?
Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate. In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to not answer specific items or questions in interviews or questionnaires. You are also free to withdraw from the study at any time without penalty. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. If you have further questions concerning matters related to this research, please contact Jenny Horch, 210-9500. If you have any questions or issues concerning this project that are not related to the specifics of the research, or if you have any concerns about the way you've been treated as a participant, you may also contact Bonnie Scherrer, Associate Director, Research Services Office, University of Calgary at (403) 220-3782; email b.scherrer@ucalgary.ca.

Participant Name (please print)	Signature	Date
Investigator	Signature	Date

A copy of this consent form has been given to you to keep for your records and reference

Appendix C

Placement of Health Conditions in Five Orders of Presentation

	Condition				
Order	Cancer	Control	Schizophrenia	Disordered Gambling	Alcohol Dependence
1	1	4	3	5	2
2	3	2	5	4	1
3	5	1	2	3	4
4	2	5	4	1	3
5	4	3	1	2	5

Note. Order was randomly determined with the help of a standard Latin square.

Appendix D

Debriefing Form

Thank you for participating in this study on attitudes towards health conditions. This research constitutes the Masters thesis of Ms. Jenny Horch, and your contribution to this research is greatly appreciated.

The authors were seeking to determine the extent to which disordered gambling is stigmatized and associated with negative attitudes, affect, or a desire to be socially distant from individuals with the condition. You were asked to respond to several health conditions in order to determine how disordered gambling ranked compared to the other conditions that are known to be stigmatized. Stigma refers to a negative attribute or social identity that reduces the bearer "from a whole and usual person to a tainted, discounted one" (Goffman, 1963). Some recent authors have claimed that one reason disordered gamblers do not seek treatment is due to the associated stigma and fear of rejection should their problems become known (Hodgins & El-Guebaly, 2000; Rockloff & Schofield, 2004). As it has yet to be established that there is a stigma associated with disordered gambling, this study is a first step towards investigating this issue.

Not seeking help for a gambling problem is particularly problematic in that problems are often exacerbated and become even more detrimental to both the gambler and those around him or her. Oftentimes, the earlier problems are addressed, the greater the likelihood of a positive outcome. Knowing the general public's attitudes towards disordered gambling is helpful in designing interventions to change unhelpful negative attitudes in the general public and may also be useful in acquiring funds to develop treatment programs that address fear of identification for disordered gamblers, such as internet help.

Participating in this study may have triggered concerns that you may have a gambling problem. If you think you may have a gambling problem there is help available. Please call 1-800-665-9676.

Thank you once again for your participation. If you would like to learn more about stigma or disordered gambling, there are some relevant references listed below. If you are interested in the results of this study you may contact Jenny Horch (210-9500) who will arrange to send you information when the study is complete. I would like to remind you that should you have any questions or concerns regarding this research you may contact Ms. Jenny Horch (210-9500). Questions and interest are welcomed, and any concerns you might have are important to the authors and should be addressed.
Again, if you have any questions or issues concerning this project that are not related to the specifics of the research, or if you have any concerns about the way you've been treated as a participant, you may also contact Bonnie Scherrer, Associate Director, Research Services Office, University of Calgary at (403) 220-3782; email b.scherrer@ucalgary.ca.

Respectfully,
Jenny Horch, M. Sc. Candidate

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Appendix E

Questionnaire Packet Contents in Order of Presentation

Measure	Construct	# of items	Appendix
Consent form		n/a	B
Debriefing form		n/a	D
Demographic questionnaire		7	F
Balanced Inventory of Desirable Responding (BIDR)	Image Management/ Social desirability	12	G
Health condition vignettes		n/a	H
Perceived causes of health condition	Origin attributions	6	I
Perceived dangerousness	Dangerousness	1	J
Controllability Attribution	Controllability	1	J
Attitudinal social distance scale	Social distance	6	K
Attribution Questionnaire Short Form (AQ-SF)	Pity, Anger, Blame, Helping, Avoidance, Fear, Dangerousness, Segregation	8	L
Devaluation-Discrimination scale	Discrimination	12	M
Level of Contact Report (LOCR)	Familiarity	11	N
Involvement in gambling checklist	Gambling Behaviour	16	O
Problem Gambling Severity Index of the Canadian Problem Gambling Index	Gambling Problems	9	P

Appendix F

Demographic Questionnaire

1) Age: _____ Sex: _____

2) Current Marital Status

a) Single _____ d) Separated _____
b) Common-law _____ e) Divorced _____
c) Married _____ f) Widowed _____

3) Current Employment Status

a) Employed Full time _____ c) Unemployed _____
b) Employed Part-time _____ d) Retired _____

4) Education

What is your major? _____

What level of education have you attained?

a) Less than a high school diploma _____
b) High school diploma _____
c) Some post-secondary education _____
d) Community college or technical school _____
e) University undergraduate degree _____
f) Graduate or professional degree _____
g) Other (please specify) _____

Number of psychology courses completed _____

Have you taken an abnormal psych course? Yes No

5) Political orientation

What political orientation would best describe yours?

a) Far Right _____ d) Liberal _____
b) Conservative _____ e) Far Left _____
c) Middle of the Road _____ f) Other or none _____

6) Religion / Spirituality

How religious/spiritual do you consider yourself to be?

a) Not at all _____
b) Somewhat (Seldom attend church/temple/mosque/ashram) _____
c) Somewhat (Attend often [at least 2 times/month]) _____
d) Very (Seldom attend) _____
e) Very (Always attend) _____

7) Ethnicity:

Ethnic origin pertains to ancestral identity or background and should not be confused with citizenship or nationality. If you have multiple ethnic origins, then please select the one that you most strongly identify with. If this is not possible, then leave this question blank.

European (including British Isles) _____
East Asian (e.g. China, Hong Kong, Korea, Japan) _____
South Asian (e.g. India, Pakistan, Bangladesh) _____
Middle Eastern _____
African _____
Latin, Central, and South American _____
Pacific Islands (e.g. Philippines, Hawaii) _____
Caribbean _____
Aboriginal _____
Other (please specify) _____

Appendix G

BIDR Version 6 – Form 40/IM

Using the scale below as a guide, write a number beside each statement to indicate how much you agree with it.

1	2	3	4	5	6	7
NOT TRUE			SOME-WHAT TRUE			VERY TRUE

_____ 1. I sometimes tell lies if I have to.

_____ 2. I never cover up my mistakes.

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

_____ 4. I never swear.

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

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

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

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

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

_____ 10. I always declare everything at customs.

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

_____ 12. I have never dropped litter on the street.

_____ 13. I sometimes drive faster than the speed limit.

_____ 14. I never read sexy books or magazines.

_____ 15. I have done things that I don't tell other people about.

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

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

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

_____ 19. I have some pretty awful habits.

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

Appendix H

Vignettes

Alcohol dependence:
Brandon is a student in one of your university classes. During the past few months Brandon has started to drink more than his usual amount of alcohol. In fact, he has noticed that he needs to drink twice as much as he used to to get the same effect. He's tried to stop drinking, or even drink less, but has found he is unable to. Each time he has tried to cut down, he became very agitated, sweaty and couldn't sleep, so he took another drink. His family has complained that he is often hungover, and has become unreliable – making plans one day, and cancelling them the next.

Schizophrenia:
Mark is a student in one of your university classes. Up until a year ago, life was pretty okay for Mark. But then, things started to change. He thought that people around him were making disapproving comments and talking behind his back. Mark was convinced that people were spying on him and that they could hear what he was thinking. Mark lost his drive to participate in his usual work and family activities and retreated to his home, eventually spending most of his day in his room. Mark was hearing voices even though no one else was around. These voices told him what to do and what to think. He has been living this way for six months.

Troubled person:
Trevor is a student in one of your university classes. Up until last year, things were going pretty well for Trevor. While nothing much is going wrong in Trevor's life, he sometimes feels worried, a little sad, or has trouble sleeping at night. Trevor feels that at times things bother him more than they bother other people and that when things go wrong, he sometimes gets nervous or annoyed. Otherwise Trevor is managing alright. He enjoys being with other people and although Trevor sometimes argues with family members, Trevor has been getting along pretty well with his family.

Pathological Gambling:
John is a student in one of your university classes. During the last month John has started to gamble more than his usual amount of money. He has even noticed that he needs to gamble much more than he used to to get the same feeling of excitement. Several times, he has tried to cut down, or stop gambling, but he can't. Each time he has tried to cut down, he became agitated and couldn't sleep, so he gambled again. His family has complained that he has really changed for the worse and that they feel like they don't even know who he is anymore. They are also beginning to feel resentful about having to help him out financially when things are bad.

Cancer:
Geoff is a student in one of your university courses. Geoff was doing great up until last winter when he went into the hospital with a back-ache. There were many tests done and eventually the doctors discovered he had a tumour in his lower back. The doctors explained it was very serious and would need immediate attention. He was booked for surgery in the new year and is currently undergoing chemotherapy treatments.

Appendix I

Perceived Causes

1. In your opinion, how likely is it that [NAME's] situation might be caused by his own bad character?

1	2	3	4
very unlikely	somewhat unlikely	somewhat likely	very likely

2. In your opinion, how likely is it that [NAME's] situation might be caused by a chemical imbalance in the brain?

1	2	3	4
very unlikely	somewhat unlikely	somewhat likely	very likely

3. In your opinion, how likely is it that [NAME's] situation might be caused by the way he was raised?

1	2	3	4
very unlikely	somewhat unlikely	somewhat likely	very likely

4. In your opinion, how likely is it that [NAME's] situation might be caused by stressful circumstances in his life?

1	2	3	4
very unlikely	somewhat unlikely	somewhat likely	very likely

5. In your opinion, how likely is it that [NAME's] situation might be caused by a genetic or inherited problem?

1	2	3	4
very unlikely	somewhat unlikely	somewhat likely	very likely

6. In your opinion, how likely is it that [NAME's] situation might be because of God's will?

1	2	3	4
very unlikely	somewhat unlikely	somewhat likely	very likely

Appendix J

Perceived Dangerousness Item

1. In your opinion, how likely is it that [NAME] would do something violent toward other people?

1	**2**	**3**	**4**
very unlikely	somewhat unlikely	somewhat likely	very likely

Controllability Attribution Item

1. Is [NAME]'s situation controllable?

0	**1**	**2**	**3**
definitely	somewhat controllable	somewhat uncontrollable	definitely not

Appendix K

Social Distance Scale

1. How willing would you be to move next door to [NAME]?

0	1	2	3
definitely	somewhat willing	somewhat unwilling	definitely not

2. How willing would you be to spend an evening socializing with [NAME]?

0	1	2	3
definitely	somewhat willing	somewhat unwilling	definitely not

3. How willing would you be to make friends with [NAME]?

0	1	2	3
definitely	somewhat willing	somewhat unwilling	definitely not

4. How willing would you be to start working closely with [NAME]?

0	1	2	3
definitely	somewhat willing	somewhat unwilling	definitely not

5. How willing would you be to have [NAME] marry into the family?

0	1	2	3
definitely	somewhat willing	somewhat unwilling	definitely not

6. How willing would you be to have a group home for people like [NAME] opened in your neighbourhood?

0	1	2	3
definitely	somewhat willing	somewhat unwilling	definitely not

Appendix L

Revised Attribution Questionnaire –Short Form (AQ-S)*

PLEASE READ THE FOLLOWING STATEMENT ABOUT JOHN

John is a student in one of your university classes. During the last month John has started to gamble more than his usual amount of money. He has even noticed that he needs to gamble much more than he used to to get the same effect. Several times, he has tried to cut down, or stop gambling, but he can't. Each time he has tried to cut down, he became very agitated and couldn't sleep, so he gambled again. His family has complained that he has really changed for the worse and that they feel like they don't even know who he is anymore. They are also beginning to feel resentful with having to help him out financially when things are bad.

CIRCLE THE NUMBER OF THE BEST ANSWER TO EACH QUESTION.

1. I would feel pity for John.

1	2	3	4	5	6	7	8	9
None at all								Very Much

2. How dangerous would you feel John is?

1	2	3	4	5	6	7	8	9
Not at all								Very Much

3. How scared of John would you feel?

1	2	3	4	5	6	7	8	9
Not at all								Very Much

4. I would think that it was John's own fault that he is in the present condition.

1	2	3	4	5	6	7	8	9
No, not at all								Yes, absolutely so

5. I think it would be best for John's community if he were put away in an institution.

1	2	3	4	5	6	7	8	9
Not at all								Very Much

6. How angry would you feel at John?

1	2	3	4	5	6	7	8	9
Not at all								Very Much

7. How likely is it that you would help John?

1	2	3	4	5	6	7	8	9
Definitely would help								Definitely would not help

8. I would try to stay away from John.

1	2	3	4	5	6	7	8	9
Not at all								Very Much

**Original includes a brief vignette of Harry, a man with schizophrenia.*

Appendix M

Devaluation-Discrimination Scale*

1. Most people would willingly accept a former problem gambler as a close friend.

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

2. Most people believe that a person who has sought treatment for a gambling problem is just as intelligent as the average person.

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

3. Most people believe that a former problem gambler is just as trustworthy as the average citizen.

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

4. Most people would accept a fully recovered former problem gambler as a teacher of young children in a public school.

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

5. Most people believe that seeking treatment for a gambling problem is a sign of personal failure. (R)

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

6. Most people would not hire a former problem gambler to take care of their children, even if he or she had been well for some time. (R)

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

7. Most people think less of a person who has been in treatment for a gambling problem. (R)

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

8. Most employers will hire a former problem gambler if he or she is qualified for the job.

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

9. Most employers will pass over the application of a former problem gambler in favour of another applicant. (R)

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

10. Most people in my community would treat a former problem gambler just as they would treat anyone.

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

11. Most young women would be reluctant to date a man who has sought treatment for a serious gambling problem. (R)

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

12. Once they know a person has sought treatment for a gambling problem, most people will take his or her opinions less seriously. (R)

1	2	3	4	5	6
Strongly Agree					Strongly Disagree

*original uses "mental patient" not problem gambler & "has been in a mental hospital" rather than a person who seeks treatment for a gambling problem

Appendix N

Level of Contact Report

Please read each of the following statements carefully. After you have read all of the statements below, place a check by **EVERY** statement that represents your experience with persons with a severe gambling problem.

____ I have watched a movie or television show in which a character depicted a person with a gambling problem.

____ My job involves providing services/treatment for persons with a severe gambling problem.

____ I have observed, in passing, a person I believe may have had a severe gambling problem.

____ I have observed persons with a severe gambling problem on a frequent basis.

____ I have a severe gambling problem.

____ I have worked with a person who had a severe gambling problem at my place of employment.

____ I have never observed a person that I was aware had a severe gambling problem.

____ A friend of the family has a severe gambling problem.

____ I have a relative who has a severe gambling problem.

____ I have watched a documentary on television about severe problem gambling.

____ I live with a person who has a severe gambling problem.

Appendix O

Involvement in Gambling Checklist

Please indicate your gambling activities below:

Gambling activities	Frequency (Circle)
Instant / Scratch Tickets	Daily / Weekly / Monthly / Occasionally / Never
Slot Machines	Daily / Weekly / Monthly / Occasionally / Never
Video Lottery Terminals (VLT)	Daily / Weekly / Monthly / Occasionally / Never
Casino table games (dice, cards, roulette)	Daily / Weekly / Monthly / Occasionally / Never
Lottery	Daily / Weekly / Monthly / Occasionally / Never
Raffles / Fundraising Tickets	Daily / Weekly / Monthly / Occasionally / Never
Bingo	Daily / Weekly / Monthly / Occasionally / Never
Sport Select	Daily / Weekly / Monthly / Occasionally / Never
Horse/Dog racing	Daily / Weekly / Monthly / Occasionally / Never
Sport Betting with a bookie	Daily / Weekly / Monthly / Occasionally / Never
Sport Pools (workplace, friends, others)	Daily / Weekly / Monthly / Occasionally / Never
Games of Skill (darts, golf, pool)	Daily / Weekly / Monthly / Occasionally / Never
Keno	Daily / Weekly / Monthly / Occasionally / Never
Gambling on Card Games with friends / family	Daily / Weekly / Monthly / Occasionally / Never
Speculative Investments / Stocks	Daily / Weekly / Monthly / Occasionally / Never
Other (specify):	Daily / Weekly / Monthly / Occasionally / Never

Appendix P

Problem Gambling Severity Index

"Thinking about the last 12 months....."

1. Have you bet more than you could really afford to lose?
   Would you say never, sometimes, most of the time, or almost always?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

2. Still thinking about the last 12 months, have you needed to gamble with larger amounts of money to get the same feeling of excitement?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

3. When you gambled, did you go back another day to try to win back the money you lost?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

4. Have you borrowed money or sold anything to get money to gamble?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

5. Have you felt that you might have a problem with gambling?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

6. Has gambling caused you any health problems, including stress or anxiety?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

7. Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

8. Has your gambling caused any financial problems for you or your household?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

9. Have you felt guilty about the way you gamble or what happens when you gamble?

0	1	2	3
Never	Sometimes	Most of the time	Almost always

Appendix Q

Demographic Characteristics of the Sample

Variable	*N*	%	*M*	*SD*
Gender				
Male	118	47.4		
Female	131	53.6		
Age			20.7	4.7
Marital Status				
Single	231	92.8		
Common-law	6	2.4		
Married	10	4		
Separated	1	0.4		
Divorced	1	0.4		
Ethnicity				
European	146	58.6		
East Asian (China, Hong Kong, Korea, Japan)	49	19.7		
South Asian (India, Pakistan, Bangladesh)	23	9.2		
Middle Eastern	4	1.6		
African	3	1.2		
Latin, Central, and South American	4	1.6		
Pacific Islands (Philippines, Hawaii)	5	2		
Caribbean	2	0.8		
Other	4	1.4		
Missing	9	3.6		
Political Orientation				
Far Right	2	0.8		
Conservative	59	23.7		
Middle of the Road	58	23.3		
Liberal	72	28.9		
Far Left	5	2		
Other or None	51	20.5		
Education				
High school diploma	73	29.3		
Some post-secondary	143	57.4		
Community college or technical school	14	5.6		
Undergraduate degree	15	6		
Graduate or professional degree	3	1.2		
Other	1	0.4		
Religion				
Not at all	77	30.9		
Somewhat, attend seldom	78	31.3		
Somewhat, attend often	24	9.6		
Very, seldom attend	32	12.9		
Very, always attend	35	14.1		

Appendix R

Participant Percent Endorsement of Gambling Activities

	Percent endorsement				
Gambling Activities	Never	Occasionally	Monthly	Weekly	Daily
Scratch Tickets	45	46	5	.5	0
Slots	72	21	1	.5	0
VLT's	81	11	1	.5	0
Casino	71	20	2.5	2.5	0
Lottery	51	36	4	2.5	0
Raffles	34	58	3	0	0
Bingo	73	19	2	0	0
Sport Select	83	7	2	2	0
Racing	88	5	0	0	0
Sport Betting	89	2.5	.5	0	0
Sports Pools	61	29	1	2.5	.5
Games of Skill	50	35	9	1	0
Keno	89	3	0	0	0
Cards with Family/Friends	35	41	14	5	0
Stocks	67	19	6	1	1

Appendix S

Perceived Causes of Vignette Conditions

Perceived Cause	Vignette, Mean (Standard Deviation)					*F*	df	*p*
	Alcohol Dependence	Disordered Gambling	Schizophrenia	Control Condition	Cancer			
Own bad character	2.9 (0.9)^{az}	3.0 (0.9)^{az}	1.8 (0.9)^{bz}	2.2 (0.9)^{cz}	1.2 (0.5)^{dz}	348.40	3.56, 883.53	<.001
Chemical imbalance in the brain	2.7 (0.9)^{az}	2.4 (0.8)^{by}	3.7 (0.6)^{cy}	2.8 (0.9)^{ay}	1.7 (0.9)^{dy}	230.93	3.39, 840.83	<.001
Way the person was raised	2.9 (0.7)^{az}	2.7 (0.7)^{bx}	2.2 (0.9)^{cx}	2.7 (0.8)^{by}	1.3 (0.6)^{dz}	243.56	3.66, 904.43	<.001
Stressful circumstances in the person's life	3.4 (0.6)^{ay}	3.1 (0.7)^{bz}	3.2 (0.8)^{bw}	3.4 (0.7)^{ax}	2.3 (0.9)^{cx}	126.04	3.56, 882.72	<.001
Genetic or inherited problem	2.5 (0.9)^{ax}	2.1 (0.9)^{bw}	3.0 (0.9)^{cw}	2.4 (0.9)^{az}	3.2 (0.8)^{cw}	97.96	3.61, 895.57	<.001
God's will	1.3 (0.7)^{abw}	1.3 (0.6)^{av}	1.5 (0.9)^{cv}	1.4 (0.8)^{bcw}	1.6 (1.0)^{dy}	28.32	2.96, 734.06	<.001
F	220.37	219.01	290.89	180.98	249.71			
df	3.64, 902.06	3.98, 986.92	3.69, 910.97	4.28, 1061.97	4.25, 1054.02			
p	<.001	<.001	<.001	<.001	<.001			

Note. $N = 249$. Likelihood was rated on a 4-point scale ranging from 1-4. Superscripts a-d denote significant differences ($p<.05$) based on Bonferroni-corrected pairwise comparisons across conditions for each cause. Superscripts z-u denote significant differences ($p<.05$) based on Bonferroni-corrected pairwise comparisons within each condition for the six causes. The Greenhouse-Geisser correction was applied for all F tests due to sphericity.

Appendix T

Participant Percent Endorsement of Level of Contact Items

Level of Contact Item	Item Rank	*N*	%
I have never observed a person that I was aware had a severe gambling problem.	1	85	34.1
I have observed, in passing, a person I believe may have had a severe gambling problem.	2	127	51
I have watched a movie or television show in which a character depicted a person with a gambling problem.	3	223	89.6
I have watched a documentary on television about severe problem gambling.	4	97	39
I have observed persons with a severe gambling problem on a frequent basis.	5	33	13.3
I have worked with a person who had a severe gambling problem at my place of employment.	6	25	10
My job involves providing services/treatment for persons with a severe gambling problem.	7	6	2.4
A friend of the family has a severe gambling problem.	8	41	16.5
I have a relative who has a severe gambling problem.	9	32	12.9
I live with a person who has a severe gambling problem.	10	5	2
I have a severe gambling problem.	11	0	0

Note. Each participant's score is determined by selecting the highest item ranking endorsed.

Appendix U

Condition by Sex by Order Mixed Analysis of Variance

Source	*df*	*F*	*p*	Partial η^2
		Between subjects		
Order (O)	4	1.01	.403	.02
Sex (S)	1	4.07*	.045	.02
S X O	4	1.70	.152	.03
Error	239	(7.36)		
		Within subjects		
Condition (C)	3.71	443.90***	.00	.65
C X S	3.71	3.37*	.01	.01
C X O	14.83	3.30***	.00	.05
C X S X O	14.83	.58	.89	.01
Error	886.13	(7.32)		

Note. Values enclosed in parentheses represent mean square errors. Values reported are with Greenhouse-Geisser correction. DG = Disordered Gambling
*p < .05. ** p < .01. *** p < .001.

Appendix V

Means, Standard Deviations, and Simple Effects Testing of Condition for the Condition by Sex and Condition by Order Interactions

		Vignette, Mean (Standard Deviation)							
	n	Alcohol Dependence	Disordered Gambling	Schizophrenia	Control Condition	Cancer	*F*	df	*p*
Sex									
Men	118	11.0 (3.6)^{a}	9.4 (3.6)^{b}	11.0 (3.9)^{a}	5.4 (3.5)^{c}	3.9 (3.4)^{d}	180.20**	3.64, 425.75	<.001
Women	131	10.9 (3.6)^{a}	9.5 (4.0)^{b}	9.8 (4.0)^{b}	4.4 (3.5)^{c}	2.7 (2.8)^{d}	258.18**	3.74, 485.66	<.001
t		0.23	-0.04	2.37	2.34	3.06*			
df		25	247	247	247	228.50			
p		.822	.971	.019	.020	.003			
Order									
Order 1	50	10.7 (3.4)^{az}	9.4 (3.7)^{bz}	10.6 (3.9)^{abz}	5.0 (3.9)^{cz}	5.0 (3.5)^{cz}	56.29**	4, 196	<.001
Order 2	50	10.3 (4.2)^{az}	9.7 (4.5)^{az}	9.8 (4.8)^{az}	4.7 (3.4)^{bz}	2.8 (3.3)^{by}	94.29**	4, 196	<.001
Order 3	50	10.9 (3.6)^{az}	9.9 (3.6)^{az}	11.1 (3.5)^{az}	6.0 (3.3)^{bz}	2.7 (3.2)^{by}	93.79**	3.37, 165.33	<.001
Order 4	49	11.5 (3.4)^{az}	9.5 (3.5)^{bz}	11.3 (3.8)^{az}	4.5 (3.4)^{cz}	3.2 (2.9)^{cy}	101.97**	4, 196	<.001
Order 5	50	11.4 (3.2)^{az}	8.7 (3.7)^{bz}	9.2 (3.8)^{bz}	4.3 (3.5)^{cz}	2.6 (2.3)^{dy}	119.99**	4, 196	<.001
F		.88	.66	2.36	1.76	5.37**			
df		4, 244	4, 244	4, 244	4, 244	4, 244			
p		.478	.619	.054	.138	<.001			

Note. Likelihood was rated on a 9-point scale ranging from 1-9. Superscripts a-d denote significant differences ($p<.05$) based on Bonferroni-corrected pairwise comparisons across columns for the condition effect at each sex and order. Superscripts z-y denote significant differences ($p<.05$) based on Bonferroni-corrected pairwise comparisons down columns for each condition. The Greenhouse-Geisser correction was applied to *F* tests for the effect of condition. When the Bonferroni correction is applied to the *t* and *F* tests $p = .01$ only Cancer is significant. Equal variances were assumed for all *t* tests except cancer.
* $p < .01$. ** $p < .001$.

Appendix W

Exploratory Ethnicity Moderator Analysis

Source	*df*	*F*	*p*	Partial η^2
		Between subjects		
Order (O)	*4*	*1.14*	*.340*	*.02*
Sex (S)	*1*	*2.16*	*.143*	*.01*
Ethnicity (E)	*1*	*23.12****	< .001	*.01*
S X O	*4*	*1.46*	.216	*.03*
E X O	*4*	*.51*	*.730*	*.01*
S X E	*1*	*.10*	*.749*	*.00*
S X E X O	*4*	*5.12*	*.560*	*.01*
Error	*220*	*(6.84)*		
		Within subjects		
Condition (C)	3.67	412.72***	< .001	.65
C X O	14.66	3.08***	< .001	.05
C X S	3.67	4.26**	.003	.02
C X E	3.67	2.89*	.025	.01
C X S X O	14.66	.72	.768	.01
C X O X E	14.66	1.33	.182	.02
C X S X E	3.67	2.16	.078	.01
C X O X S X E	14.66	1.02	.430	.02
Error	806.43	(7.17)		

Note. Values enclosed in parentheses represent mean square errors. Values reported are with Greenhouse-Geisser correction. DG = Disordered Gambling
*p < .05. ** p < .01. *** p < .001.

Appendix X

Means, Standard Deviations, and Simple Effects for the Exploratory Ethnicity Moderator Analysis

		Vignette, Mean (Standard Deviation)							
	n	Alcohol Dependence	Disordered Gambling	Schizophrenia	Control Condition	Cancer	*F*	df	*p*
Ethnicity									
European	146	10.4 (3.8) [a]	8.5 (3.8) [b]	10.1 (4.1) [a]	4.2 (3.5) [c]	2.5 (2.9) [d]	290.45	3.54, 513.82	<.001
Non-European	94	11.9 (2.8) [a]	11.0 (3.3 [b]	11.0 (3.9) [ab]	5.8 (3.4) [c]	4.5 (3.3) [d]	143.78	3.66, 340.25	<.001
t		3.64	5.21	1.65	3.44	4.74			
df		232.92	238	238	238	176.78			
p		< .001	< .001	1.00	.001	< .001			

Note. Social Distance was rated on a 4-point scale ranging from 0-3 with 3 denoting high social distance. Superscripts a-d denote significant differences ($p < .05$) based on Bonferroni-corrected pairwise comparisons across conditions for each ethnicity. The Greenhouse-Geisser correction was applied to F tests due to sphericity. Levene's test for equal variances was significant for the alcohol dependence and cancer conditions, therefore equal variances were not assumed for these conditions.