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PUBLIC STIGMA OF DISORDERED GAMBLING: SOCIAL DISTANCE, DANGEROUSNESS, AND FAMILIARITY

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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 that, in keeping with hypotheses, disordered gambling was more stigmatized than the cancer and control conditions. Interactions suggested that stigma may be influenced by context (i.e., order of vignette appearance) and participant characteristics (i.e., sex and ethnicity), although follow–up analyses revealed this was not the case for disordered gambling. Perceived dangerousness attributions and familiarity (previous experience with a disordered gambler) were also examined. As predicted, perceived dangerousness was positively correlated with social distance scores. Familiarity ratings were unrelated to social distance.

Recent consensus identifies stigma as the greatest problem facing the entire field of mental health (Hinshaw, 2006). Stigma is a barrier to treatment seeking and adherence (Sirey et al., 2001). Approximately two thirds of individuals with mental illness do not seek treatment (Kessler et al., 1996). Stigma has also been suggested as a barrier to treatment for individuals struggling with disordered gambling (Hodgins & el–Guebaly, 2000; Rockloff & Schofield, 2004; Tavares,

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Martins, Zilberman, & el–Guebaly, 2002), a population in which only one in ten will seek treatment (Cunningham, 2005).

While many individuals gamble socially, approximately 5% of the Canadian adult population develop gambling disorders (Shaffer, Hall, & Vander Bilt, 1999), which include the psychiatric diagnosis "pathological gambling" (American Psychological Association, 2000) and the less severe "problem gambling" (Toce–Gerstein, Gerstein, & Volberg, 2003). Consequences of gambling disorders can include large financial losses, significant psychological distress, relational problems, and problems with the law (APA, 2000).

STIGMA

Mental illness stigma has been defined as 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). Researchers differentiate between public stigma (stigma held by the general public) and self–stigma (the internalization of public stigma, Corrigan, 2004). Two pertinent theories that address why conditions are stigmatized are attribution theory (Weiner, 1995) and the danger appraisal hypothesis (see Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003). Attribution theory maintains that discriminatory behavior is the end result of a cognitive–emotional process: attributions elicit emotional reactions that in turn generate punishing or helping behaviors (Weiner, 1995). Specifically, an individual's attributions regarding the cause of a condition may lead to inferences of responsibility if causes are perceived to be internal or under the individual's control. Inferences of internal origin and responsibility may result in anger and punishing behavior, while attributions of external or uncontrollable causes lead to pity and helping behavior. According to the danger appraisal hypothesis, dangerousness is associated with a desire for greater social distance from an individual because it elicits fear (Corrigan et al., 2003; Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999).

Stigma has been found to vary with individual differences, including sex, age, political orientation, and ethnicity of the perceiver or cultural context. Some researchers have hypothesized that women are generally more tolerant and more accepting of individuals with stigmatizing conditions (Schnittker, 2000). Research has 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. 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).

Interpersonal contact influences whether a particular individual will stigmatize a certain condition. Contact is a widely researched anti–stigma strategy and refers to the exposure individuals may have had with members of a 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 studies have found that contact, or familiarity, increases mental illness stigma (Corrigan et al., 2005), whereas others have found that those with greater exposure to stigmatized individuals have more favorable attitudes towards them (Link & Cullen, 1986; Penn et al., 1994).

STIGMA AND MENTAL ILLNESS

The general public discriminates among disability groups, viewing persons with mental illness more harshly than those with physical disabilities (Corrigan et al., 2000; Weiner, Perry, & Magnusson, 1988). Wiener and colleagues (1988) found individuals with mental–behavioral 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, Pescosolido, & Tuch, 2000; Weiner et al., 1998). Addictions may be 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 behavioral addictions such as gambling

disorders have been labeled a "disease of volition" (Campbell, 2003; Valverde, 1998).

To date, limited research has been conducted regarding the extent to which disordered gambling is stigmatized. An Australian general population telephone survey determined stigma ranked second only to ignorance of treatment availability as a barrier to treatment seeking (Rockloff & Schofield, 2004). In a Canadian study, 39% of untreated active and 51% of untreated recovered problem gamblers endorsed stigma as a barrier to their seeking treatment (Hodgins & el–Guebaly, 2000). Tavares, Martins, Zilberman, and el-Guebaly (2002) examined the impact of four potential treatment–delaying factors for treatment seeking disordered gamblers in Brazil and found that stigma (i.e., shame and secrecy) was one of two strongest predictors of treatment delay. Finally, a recent American study asked undergraduate students to rate vignettes describing mental disorders on a social distance scale. Pathological gambling ranked thirteenth of forty disorders presented (Feldman & Crandall, 2007), although the sample of participants rating gambling was very small. These studies provide preliminary evidence that both the general public and disordered gamblers perceive stigma associated with disordered gambling.

THE PRESENT STUDY

In the present study, participants 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. Hypotheses were derived from past research and were based on attribution theory (Weiner, 1995), the danger appraisal hypothesis, and the contact hypothesis (Allport, 1954). Three principle hypotheses were made. 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. Dangerousness attributions were expected to be moderately positively correlated with social distance scores, with greater dangerousness resulting in greater social distance (hypothesis 2).

Third, 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 3). Additional analyses described participants' causal attributions for the five health conditions. While these comparisons were considered exploratory, it was hypothesized that participants would endorse bad character in making causal attributions for disordered gambling.

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. Groups of 8–34 students were asked to complete paper and pencil questionnaire measures.

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 Analysis of Variance (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 included due to greater supply than demand for participants through the RPS.

Procedure

Ethics approval was obtained from the Conjoint Faculties Research Ethics Board at the University of Calgary. Informed consent was obtained 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 social desirability bias. Participants indicated their sex, age, ethnicity, and political orientation (categories from Kemmelmeier, Danielson, & Basten, 2005) before completing the questionnaire package. Measures are presented below in the order they appeared. Participants responded to all vignettes, but answered the Discrimination–Devaluation questionnaire and latter measures only in response to a second presentation of the disordered gambling vignette. At the conclusion of the study, participants received a debriefing form that made the purposes of the study explicit and included references for resources to learn more about stigma, gambling, and where one might seek problem gambling treatment.

Measures

Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1988). The Impression Management (IM) 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). The present study attained an alpha of .76.

Vignettes (see Appendix). 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 Diagnostic and Statistical Manual, Fourth Edition (DSM–IV; APA, 1994). A vignette was constructed to depict a person who engages in pathological gambling also based on the DSM–IV. As only five of 10 criteria are required 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. It was determined that the most common criteria included loss of control, tolerance, withdrawal symptoms, needing to be bailed out financially, and risking social relationships (Toce–Gerstein et al., 2003). A cancer vignette was also constructed and included to compare and contrast a physical illness to the above mental illnesses. Order of vignette presentation

was counterbalanced using a randomly determined standard Latin square, producing five orders.

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. The 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).

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).

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). The six social distance items used in this study (adapted from Martin et al., 2000) 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 indicative of social distance, with higher numbers indicating greater social distance. Past studies have determined reliability for these items to be excellent ($\alpha = .87$). Alphas in this study were 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 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 Attribution Question-

naire have been validated in two confirmatory factor analyses (Corrigan et al., 2003).

Devaluation–Discrimination Scale (Link, 1987; Link, Mirotznik, & Cullen., 1991). The Devaluation–Discrimination scale consists of twelve 6–point Likert–type items which assess the degree respondents anticipate devaluation and discrimination of individuals with a history of psychiatric treatment from "most people." 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 (α = .82, Link et al., 1991; α = .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, Corrigan, Williams, Canar, & Kubiak, 1999). The Level of Contact Report 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"). The measure was adapted to refer to "a gambling problem." 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.

Involvement in Gambling Checklist. An involvement in gambling checklist was included in order to ascertain participation in gambling activities. Frequency of gambling behavior (daily, weekly, monthly, occasionally, never) of the following gambling activities was inquired of: instant/scratch tickets, slot machines, video lottery terminals, casino table games, lottery, raffles/fundraising tickets, bingo, sport select, horse/dog racing, sport betting with a bookie, sports pools (workplace, friends, others), games of skill (darts, golf, pool), keno, gambling on cards with friends/family, speculative investments/stocks.

Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). The PGSI was included for exploratory purposes as personal gambling

problems may affect participant scores on other measures. Only participants who gambled at least twice in the past year were asked to complete the measure. 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: nonproblem (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

Participants were 131 women (53.6%) and 118 men (46.4%) who ranged in age from 16 to 52 (M = 20.7, SD = 4.7). Participants self–identified as 58.6% (n = 146) European, 19.7 % (n = 49) East Asian, 9.2% (n = 23) South Asian, and 8.8% (n = 22) other, with 3.6% (n = 9) not responding. When asked their political orientation 28.9% (n = 72) indicated they were liberal, 23.7% (n = 59) said they were conservative, 23.3% (n = 58) identified as middle of the road, and 20.5% (n = 51) indicated other or none. The majority of students were single (92.8%, n = 231), with 4% (n = 10) married, 2.4% (n = 6) common law, and 0.8 % (n = 2) separated or divorced. Finally, 30.9% (n = 77) of students claimed they were not at all religious, while 31.3 % (n = 78) identified as somewhat religious indicating they seldom attended a place of worship, 9.6% (n = 24) said they were somewhat religious and attended often, 12.9% (n = 32) indicated they were very religious yet seldom attended, and 14.1% (n = 35) were very religious and always attended.

In terms of participants' level of contact with problem gamblers, 89.6% of participants had watched a movie or television show depicting a problem gambler, 51% believed they may have observed a person with a gambling problem in passing, 39% had watched a television documentary, 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, 2.4% provided services or treatment to individuals with gambling problems, and 2% lived with a person with a severe gambling problem. Only 34% indi-

cated they had never observed a person that they were aware had a severe gambling problem.

Examination of personal gambling behavior revealed participants engaged in four different gambling activities on average ($M = 4.3$, $SD = 2.7$), with the four most common activities engaged in occasionally including raffles, scratch tickets, cards with family and friends, and the lottery. 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 nonproblem gamblers.

Principle Analyses

Social desirability as measured by the BIDR did not correlate significantly with social distance. Therefore, social desirability was not a covariate and was not included in any subsequent analyses.

Hypothesis 1. A 2 × 5 × 5 (sex × health condition × 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 of vignette presentation (five orders). The dependent variable was attitudinal social distance. It was hypothesized that individuals would desire greater 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 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, $F(1, 239) = 724.95$, $p = > .001$,

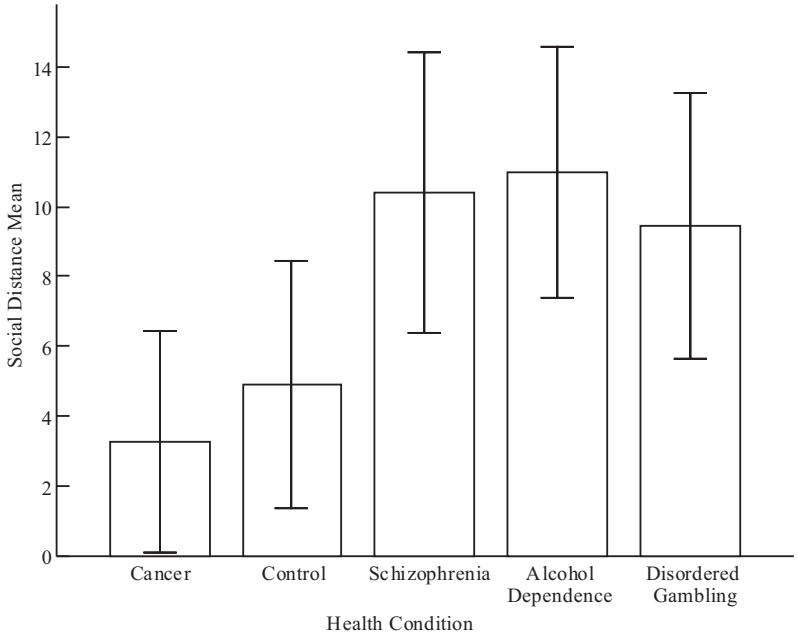

FIGURE 1. Main Effect of Condition for Social Distance Means (Standard Deviations).

partial $\eta^2 = .75$, or in the control condition, $F(1, 239) = 395.13$, $p = > .001$, partial $\eta^2 = .62$. Follow up analyses of the condition by order interaction revealed that the effect of condition was significant at each of the five orders. An order effect was only observed for cancer. Means, standard deviations, one–way repeated measures ANOVAs and pairwise comparisons are displayed in Table 1.

The main effect of sex revealed that women ($M = 7.5$, $SD = 3.6$), in general, desired less social distance than men ($M = 8.2$, $SD = 3.6$). Follow up analyses of the condition by sex interaction revealed a significant effect of condition for both men and women. These means, standard deviations, and independent–samples t tests are also included in Table 1. As shown, 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.

TABLE 1. Means, Standard Deviations, and Simple Effects Testing for the Condition by Sex and Condition by Order Interactions Vignette, Mean (Standard Deviation)

	n	Alcohol Dependence	Disordered Gambling	Schizophrenia	Control Condition	Cancer	*df*	*F*	*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)$_{d}$	3.64, 425.75	180.20**	<.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)$_{d}$	3.74, 485.66	258.18**	<.001
df		25	247	247	247	228.50			
t		0.23	–0.04	2.37	2.34	3.06*			
p		.822	.971	.019	.020	.003			
Order									
Order 1	50	10.7 (3.4)$_{a\ z}$	9.4 (3.7)$_{b\ z}$	10.6 (3.9)$_{ab\ z}$	5.0 (3.9)$_{c\ z}$	5.0 (3.5)$_{c\ z}$	4, 196	56.29**	<.001
Order 2	50	10.3 (4.2)$_{a\ z}$	9.7 (4.5)$_{a\ z}$	9.8 (4.8)$_{a\ z}$	4.7 (3.4)$_{b\ z}$	2.8 (3.3)$_{b\ y}$	4, 196	94.29**	<.001
Order 3	50	10.9 (3.6)$_{a\ z}$	9.9 (3.6)$_{a\ z}$	11.1 (3.5)$_{a\ z}$	6.0 (3.3)$_{b\ z}$	2.7 (3.2)$_{b\ y}$	3.37, 165.33	93.79**	<.001
Order 4	49	11.5 (3.4)$_{a\ z}$	9.5 (3.5)$_{b\ z}$	11.3 (3.8)$_{a\ z}$	4.5 (3.4)$_{c\ z}$	3.2 (2.9)$_{c\ y}$	4, 196	101.97**	<.001
Order 5	50	11.4 (3.2)$_{a\ z}$	8.7 (3.7)$_{b\ z}$	9.2 (3.8)$_{b\ z}$	4.3 (3.5)$_{c\ z}$	2.6 (2.3)$_{d\ y}$	4, 196	119.99**	<.001
df		4, 244	4, 244	4, 244	4, 244	4, 244			
F		.88	.66	2.36	1.76	5.37**			
p		.478	.619	.054	.138	<.001			

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

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. nonEuropean) 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 were 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 nonEuropeans. Follow–up t–tests revealed nonEuropeans desired greater social distance than Europeans from all conditions except schizophrenia (means, standard deviations, and simple effects available from the author).

Hypothesis 2. Dangerousness ratings were highest for the alcohol dependence condition (M = 1.98, SD = .73) and the schizophrenia condition (M = 1.73, SD = .73). Overall, male disordered gamblers were perceived to be somewhat unlikely to be violent (M = 1.19, SD = .89). The control (M = 0.69, SD = .70) and cancer (M = 0.31, SD = .61) conditions were not rated as dangerous. A Pearson product moment correlation coefficient was computed to determine the degree to which dangerousness attributions were associated with attitudinal social distance. 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.

Hypothesis 3. Greater familiarity with individuals with a gambling problem was hypothesized to be associated with lower attitudinal 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 = .38).

Descriptive and Exploratory Analyses

Participants indicated that "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 ($M = 2.6$, $SD = 1.9$).

Exploratory one–way repeated measures ANOVA 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 center 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 Table 2.

DISCUSSION

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 male cancer patients and men 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 difference between male and fe-

TABLE 2. Perceived Causes of Vignette Conditions Vignette, Mean (Standard Deviation)

Perceived Cause	Alcohol Dependence	Disordered Gambling	Schizophrenia	Control Condition	Cancer	*df*	*F*	*p*
Own bad character	2.9 (0.9)$_{a\ z}$	3.0 (0.9)$_{a\ z}$	1.8 (0.9)$_{b\ z}$	2.2 (0.9)$_{c\ z}$	1.2 (0.5)$_{d\ z}$	3.56, 883.53	348.40	<.001
Chemical imbalance in the brain	2.7 (0.9)$_{a\ z}$	2.4 (0.8)$_{b\ y}$	3.7 (0.6)$_{c\ y}$	2.8 (0.9)$_{a\ y}$	1.7 (0.9)$_{d\ y}$	3.39, 840.83	230.93	<.001
Way the person was raised	2.9 (0.7)$_{a\ z}$	2.7 (0.7)$_{b\ x}$	2.2 (0.9)$_{c\ x}$	2.7 (0.8)$_{b\ y}$	1.3 (0.6)$_{d\ z}$	3.66, 904.43	243.56	<.001
Stressful circumstances in the person's life	3.4 (0.6)$_{a\ y}$	3.1 (0.7)$_{b\ z}$	3.2 (0.8)$_{b\ w}$	3.4 (0.7)$_{a\ x}$	2.3 (0.9)$_{c\ x}$	3.56, 882.72	126.04	<.001
Genetic or inherited problem	2.5 (0.9)$_{a\ x}$	2.1 (0.9)$_{b\ w}$	3.0 (0.9)$_{c\ w}$	2.4 (0.9)$_{a\ z}$	3.2 (0.8)$_{c\ w}$	3.61, 895.57	97.96	<.001
God's will	1.3 (0.7)$_{ab\ w}$	1.3 (0.6)$_{a\ v}$	1.5 (0.9)$_{c\ v}$	1.4 (0.8)$_{bc\ w}$	1.6 (1.0)$_{d\ y}$	2.96, 734.06	28.32	<.001
df	3.64, 902.06	3.98, 986.92	3.69, 910.97	4.28, 1061.97	4.25, 1054.02			
F	220.37	219.01	290.89	180.98	249.71			
p	<.001	<.001	<.001	<.001	<.001			

Note. $N = 249$. Likelihood was rated on a 4–point scale ranging from 1–4. Means with different subscripts differ significantly at $p < .05$ based on Bonferroni–corrected pairwise comparisons. Subscripts a–d denote significant differences across conditions for each cause. Subscripts z–u denote significant differences within each condition for the six causes. The Greenhouse–Geisser correction was applied for all *F* tests due to sphericity.

male students in the degree of desired social distance from male disordered gamblers.

The results of this study suggest both context (i.e., order of appearance) and individual differences (i.e., participant sex and ethnicity) 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 social distance ratings occurred when the cancer vignette was presented 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. 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. This study illustrates that it is misleading to conduct research on a construct so intimately connected to moderating factors such as context without also examining such variables. Future stigma research should consider contextual factors whether employing between– or within–subjects methodology.

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 from 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 for most conditions, disordered gambling included. The current data preclude any firm conclusions regarding the effect of ethnicity due to participant diversity and insufficient cell size for certain ethnic groups. Furthermore, the concept of ethnicity is complex and is often confounded with race, nationality, and geographic origin. Future research should

be explicit regarding the construct measured and should measure the cultural beliefs and values implied with the use of the term ethnicity rather than simply measuring geographic origin. 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.

CAUSES OF DISORDERED GAMBLING STIGMATIZATION

Examination of causal attributions revealed participants attributed disordered gambling to stressful life circumstances and bad character more than the other included causes. 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. God's will was considered 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. Beliefs that individuals with pathological gambling are characterologically flawed are likely residual from the previously held moral model of addictions and appear to contribute to disordered gambling stigma.

Perceptions of dangerousness were also associated with stigmatization, providing support for the dangerousness appraisal hypothesis. Overall, disordered gamblers were perceived to be somewhat unlikely to be violent, however, participants that perceived disordered gamblers as dangerous desired greater social distance than participants who did not.

COMBATING STIGMA

Protest, education, and contact are three frequently studied methods of reducing public stigma (Corrigan et al., 2000). Many authors have found that familiarity generally results in lower levels of desired social distance for a variety of mental health disorders (Link & Cullen, 1986; Penn et al., 1994). While the above finding was not replicated with disordered gambling in this sample, it appeared 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 and content 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 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, 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 is not representative of the general cultural and societal context (see Gallander Wintre, North, & Sugar, 2001). 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). Furthermore, as vignettes containing only male characters were used, results may not generalize to women problem gamblers. 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. The decision to limit vignettes to males was made reluctantly in order to limit the sample size requirements and is a limitation of the within–subjects design of this study.

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 and may not be accessible to consciousness (Hinshaw & Cicchetti, 2000; Teachman, Wilson, & Komarovskaya, 2006). While social desirability bias was examined with the IM subscale of the BIDR (Paulhus, 1988), this study does not examine implicit stigma. Instead, it re-

quires participants to be aware of and have an accurate understanding of their beliefs regarding health conditions.

Finally, Hinshaw and Cicchetti (2000, p. 585) note that even if participants' estimations of their beliefs are accurate, there is "no guarantee that even veridical attitude change will translate into behavioral indicators of reduced stigma." One meta–analysis found modest to moderate correlations between attitudes and behavior (Kraus, 1995), indicative of partial independence. While consensus has been reached that attitudes do "significantly and substantially predict future behavior" (Kraus, 1995, p. 58), further research with ecologically valid behavioral measures that supplement attitudinal measures is needed (Hinshaw & Cicchetti, 2000).

In conclusion, 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 problem gambling treatment seeking (Tavares et al., 2002). However, this work did not examine the perspectives of nontreatment seeking individuals and did not consider the effect of public stigma on 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 impact on treatment–seeking.

APPENDIX

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.

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