Psychological factors, sociodemographic characteristics, and coping mechanisms associated with the self-stigma of problem gambling

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Background and aims: Few studies have examined the stigma of problem gambling and little is known about those who internalize this prejudice as damaging self-stigma. This paper aimed to identify psychological factors, sociodemographic characteristics, and coping mechanisms associated with the self-stigma of problem gambling. *Methods:* An online survey was conducted on 177 Australian adults with a current gambling problem to measure self-stigma, self-esteem, social anxiety, self-consciousness, psychological distress, symptom severity, most problematic gambling form, stigma coping mechanisms, and sociodemographic characteristics. *Results:* All variables significantly correlated with self-stigma were considered for inclusion in a regression model. A multivariate linear regression indicated that higher levels of self-stigma were associated with: being female, being older, lower self-esteem, higher problem gambling severity score, and greater use of secrecy (standardized coefficients: 0.16, 0.14, −0.33, 0.23, and 0.15, respectively). Strongest predictors in the model were self-esteem, followed by symptom severity score. Together, predictors in the model accounted for 38.9% of the variance in self-stigma. *Discussion and conclusions:* These results suggest that the self-stigma of problem gambling may be driven by similar mechanisms as the self-stigma of other mental health disorders, and impact similarly on self-esteem and coping. Thus, self-stigma reduction initiatives used for other mental health conditions may be effective for problem gambling. In contrast, however, the self-stigma of problem gambling increased with female gender and older age, which are associated with gaming machine problems. This group should, therefore, be a target population for efforts to reduce or better cope with the self-stigma of problem gambling.

Keywords: self-stigma, problem gambling, coping, self-esteem

INTRODUCTION

Problem gambling has been defined as gambling behavior that creates negative consequences for the gambler, others in his or her social network, or for the community (Ferris & Wynne, 2001). The public stigma attached to problem gambling occurs at similar levels to the stigma associated with alcoholism and schizophrenia (Hing, Russell, Gainsbury, & Nuske, 2016). It manifests as substantial negative stereotyping, social distancing, devaluation, and discrimination directed at people with gambling problems (Feldman & Crandall, 2007; Hing, Russell, & Gainsbury, 2016; Horch & Hodgins, 2008, 2013). "Problem gamblers" are most commonly stereotyped as being compulsive, impulsive, desperate, irresponsible, risk-taking, depressed, greedy, irrational, antisocial, and aggressive (Horch & Hodgins, 2013). Studies measuring social distancing have identified a distinct unwillingness among the general public to form close relationships with people experiencing problem gambling (Dhillon, Horch, & Hodgins, 2011; Hing, Russell, & Gainsbury, 2016; Horch & Hodgins, 2008). Problem gambling also elicits widespread demeaning attitudes and discriminatory behaviors among members of the public (Hing, Russell, & Gainsbury, 2016). Operating at a

macro rather than individual level, structural stigma may also be present where social and institutional policies and practices intentionally or unintentionally restrict the opportunities of a stigmatized group (Corrigan, 2004; Corrigan, Markowitz, & Watson, 2004). However, structural stigma in relation to problem gambling has yet to be researched.

These prejudicial societal attitudes and behaviors toward individuals affected by problem gambling can be internalized as self-stigma, with additional deleterious effects (Carroll, Rodgers, Davidson, & Sims, 2013; Hing, Nuske, Gainsbury, & Russell, 2016; Hing & Russell, 2017). Self-stigma occurs when affected individuals endorse and apply the negative public stereotypes associated with their condition to themselves, leading to diminished self-esteem (Corrigan & Watson, 2002; Corrigan, Watson, & Barr, 2006). Even in the absence of direct discrimination, an individual's experiences, perceptions, or anticipation of negative social reactions to their stigmatized condition may give rise to a negative self-concept, maladaptive behavior,

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identity transformation, and/or stereotype endorsement (Livingston & Boyd, 2010). Numerous outcomes can follow, including increased social anxiety, reduced social networks, lowered self-efficacy, psychological adversity, demoralization, feelings of hopelessness, and compromised quality of life (Boyd, Adler, Otilingam, & Peters, 2014; Link & Phelan, 2001).

While self-stigma has been widely researched for numerous mental health conditions (see, e.g., Boyd et al., 2014; Livingsorth & Boyd, 2010), only four studies have directly investigated the self-stigma associated with problem gambling. Interviews with 30 people self-reporting a gambling problem revealed that self-stigma was most commonly expressed as feelings of shame, embarrassment, weakness, stupidity, guilt, and remorse (Carroll et al., 2013). Another qualitative study, of 44 people experiencing problem gambling (Hing, Nuske, Gainsbury, & Russell, 2016), found they overwhelmingly perceived that problem gambling attracts acute societal stigma and is attributed to personal failings. Participants, therefore, held substantial fears about being viewed as "a problem gambler" as this social identity would likely attract demeaning stereotypes, social rejection, hostile responses, and prejudicial behaviors. Many interviewees internalized this perceived stigma as self-stigma, with damaging effects reported on their self-esteem, self-efficacy, perceived social worth, and mental and physical health. To cope with their fears and deep shame, most participants kept their gambling problem a secret, avoiding disclosure and help-seeking. Another study, employing survey methods with 155 individuals, demonstrated that the self-stigma of problem gambling is associated with reduced self-esteem, increased shame and (contrary to expectations) higher likelihood of treatment-seeking, and that shame predicted use of secrecy and withdrawal as coping mechanisms (Horch & Hodgins, 2015). Finally, a another quantitative study found that self-stigma increased with expectations that the public applies negative stereotypes to people with gambling problems, holds demeaning and discriminatory attitudes toward them, and considers them to lead highly disrupted lives (Hing & Russell, 2017).

While these studies provide some insights, research in this area is scant. A recent review noted that little is known about the psychological correlates of self-stigma among those with a gambling problem, and that self-stigma may vary among different sociodemographic groups (Hing, Holdsworth, Tiyce, & Breen, 2014). This paper aims to identify psychological factors, sociodemographic characteristics, and coping mechanisms associated with the self-stigma of problem gambling. Its findings can inform health promotion and prevention strategies that aim to reduce self-stigma's negative impacts on people with gambling problems.

Psychological factors associated with the self-stigma of mental illness include lower self-esteem (Boyd et al., 2014; Corrigan et al., 2006; Fung, Tsang, Corrigan, Lam, & Cheung, 2007; Livingston & Boyd, 2010), and increased social anxiety (Birchwood et al., 2007; Lysaker, Yanos, Outcalt, & Roe, 2010; Rüsch et al., 2009), self-consciousness (Goffman, 1963; Pinel, 1999, 2004), psychological adversity (Boyd et al., 2014; Griffiths,

Christensen, & Jorm, 2008; Livingston & Boyd, 2010; Markowitz, 1998), and symptom severity (Boyd et al., 2014; Livingston & Boyd, 2010; Yen et al., 2005). Socio-demographic correlates of the self-stigma of mental illness are inconsistent (Livingston & Boyd, 2010). However, Hing, Holdsworth et al. (2014) discuss reasons why people with gambling problems who are in lower socioeconomic circumstances, female, or in minority groups might attract more public stigma.

Coping mechanisms for a stigmatized condition (Link, Yang, Phelan, & Collins, 2004) include secrecy through hiding the condition from others, withdrawal from social interactions and social support, educating others about the problem as a means of justification, challenging to confront prejudice and discrimination, and cognitive distancing from the stigmatized group as found among professional poker players who utilized membership categorization to distance themselves from other gambler groups (Radburn & Horsley, 2011). Secrecy and withdrawal appear to be the most common coping mechanism used by those with a gambling problem (Carroll et al., 2013; Hing, Nuske, Gainsbury, & Russell, 2016; Hing, Holdsworth et al., 2014; Horch & Hodgins, 2015).

Based on these previous findings, we hypothesized that increased self-stigma of problem gambling is associated with: lower self-esteem, higher social anxiety, higher self-consciousness, higher psychological distress and greater severity of problem gambling (H_1); being female, in lower socioeconomic circumstances and in an ethnic minority group (H_2); and increased use of secrecy and withdrawal (H_3).

METHODS

Participants and procedure

We were interested in surveying Australians who had experienced problem gambling within the last 12 months, as indicated by a score of 8 or higher on the Problem Gambling Severity Index (PGSI; Ferris & Wynne, 2001). Participants "who have experienced a gambling problem" were recruited through emailing an existing database of people with gambling problems who had previously completed our surveys (and had consented to being recontacted), and through Google advertisements. The online survey was hosted on the Qualtrics platform from May to July 2014. A AU$20 shopping voucher was offered as compensation for completing the survey. Respondents were presented with a preamble that explained the study, assured them of anonymity, asked for informed consent, and provided contact details for gambling help and crisis services.

A total of 351 participants started the survey and 203 (57.8%) completed it. Median completion time was 27.5 min. Of the 203 complete responses, 26 had a PGSI score below 8 and were excluded from analysis. The final sample comprised 177 participants, who were mostly male (66.5%), with a mean age of 40.3 years ($SD = 13.8$). Table 1 shows full demographic details.

Table 1. Demographic characteristics of the sample (*N* = 177)

Variable	Descriptive statistics
Gender	
Male	66.7% (*n* = 118)
Female	33.3% (*n* = 59)
Age	*M* = 40.3, *SD* = 13.8, median = 38, range: 19–73
Main language spoken at home	
English	90.4% (*n* = 160)
Other	9.6% (*n* = 17)
Highest level of education	
Postgraduate qualifications	6.8% (*n* = 12)
A university or college degree	20.3% (*n* = 36)
A trade, technical certificate, or diploma	31.1% (*n* = 55)
Year 12 or equivalent	23.7% (*n* = 42)
Year 10 or below	18.1% (*n* = 32)
Combined pretax annual household income (AU$)	
Under $20,000	11.9% (*n* = 21)
$20,000–$39,999	12.4% (*n* = 22)
$40,000–$59,999	16.4% (*n* = 29)
$60,000–$79,999	12.4% (*n* = 22)
$80,000–$99,999	11.3% (*n* = 20)
$100,000–$119,999	5.1% (*n* = 9)
$120,000–$139,999	5.1% (*n* = 9)
$140,000–$159,999	2.3% (*n* = 4)
$160,000–$179,999	3.4% (*n* = 6)
$180,000–$199,999	1.7% (*n* = 3)
Above $200,000	2.3% (*n* = 4)
Prefer not to say	15.8% (*n* = 28)

Note. SD: standard deviation.

Measures

Self Stigma of Problem Gambling Scale. No preexisting scale was available to measure the self-stigma of problem gambling. The one quantitative study of this self-stigma (Horch & Hodgins, 2015) adapted the self-concurrence subscale of the Self-Stigma of Mental Illness Scale (Corrigan et al., 2006). While demonstrating adequate reliability (Cronbach's α = .81), this subscale elicited much lower stereotype agreement than expected, leading the authors to advocate for development and use of a specific scale instead.

We, therefore, developed a novel scale based on qualitative interviews with 30 people who expressed how they felt about their own gambling problem – which may be regarded as an expression of self-stigma (Carroll et al., 2013). We analyzed themes from Carroll et al. (2013) to create 19 items. Our participants then rated how strongly they agreed or disagreed that their gambling has made them feel, for example, "ashamed," "stupid," "inadequate," "weak," and "entirely to blame for having the problem." Response options were "strongly disagree" (0), "disagree" (1), "neither agree nor disagree" (2), "agree" (3), and "strongly agree" (4). Cronbach's α was .95.

Psychological variables. Self-esteem was measured with the 10-question Rosenberg Self-Esteem Scale (Rosenberg, 1965), a widely used and well-validated measure (Schmitt &

Allik, 2005). Participants were asked how strongly they agreed or disagreed with 10 statements regarding their attitudes toward themselves, for example, "I feel that I have a number of good qualities." Response options were "strongly disagree" (−2), "disagree" (−1), "neither agree nor disagree" (0), "agree" (1), and "strongly agree" (2). Cronbach's α was .87. We opted to use a 5-point scale, instead of the original 4-point scale, to ease respondent burden as this was consistent with the response options provided for most other survey measures that used a Likert scale.

Psychological distress was measured with the *Kessler 6* (K-6), a well-validated reliable measure (Kessler et al., 2002). Participants were asked six questions about how often they felt a particular way in the last 4 weeks. These six questions encompass nervousness, hopelessness, restlessness, depression, worthlessness, and that everything is an effort. Response options were "all of the time" (4), "most of the time" (3), "some of the time" (2), "a little of the time" (1), and "none of the time" (0). Scores on all six items were summed to give an index of psychological distress. Cronbach's α was .92.

Self-consciousness and social anxiety were measured with the public self-consciousness and social anxiety subscales of Scheier and Carver's (1985) Self-Consciousness Scale, a widely used and well-validated measure of self-consciousness (Cramer, 2000). Participants answered seven items about public self-consciousness and six items about social anxiety that were recorded on a 4-point scale. Response options were "not like me at all" (0), "a little like me" (1), "somewhat like me" (2), and "s lot like me" (3). Cronbach's α were .83 and .82, respectively.

Problem gambling variables. Problem gambling severity was measured by the PGSI, with response options being "never" (0), "sometimes" (1), "most of the time" (2), and "almost always" (3). Consistent with its validation (Ferris & Wynne, 2001), those scoring a total of 8 or more were deemed to meet criteria for problem gambling. Cronbach's α was .91. Participants were also asked what type of gambling had caused them the most problems from nine options (including "Other: Please specify").

Coping orientation. Use of five coping approaches (secrecy, withdrawal, educating, challenging, and distancing), adapted from Link et al.'s (2004) measures of coping orientation, were measured by two items each. Participants were presented with statements, such as "you have hidden evidence of your gambling from others." Response options were "strongly disagree" (−2), "disagree" (−1), "neither agree nor disagree" (0), "agree" (1), and "strongly agree" (2). Three subscales displayed acceptable reliability and were retained: secrecy (Spearman–Brown = 0.77), educating (Spearman–Brown = 0.65), and distancing (Spearman–Brown = 0.68). Reliability for withdrawal (Spearman–Brown = 0.43) and challenging (Spearman–Brown = 0.33) were low, so one item was chosen from each subscale for use in analyses. These were "you avoid people who have negative opinions about problem gamblers" for withdrawal and "when someone stigmatizes or discriminates against problem gamblers you let them know you disagree with them" for challenging.

Sociodemographics. Respondents were asked their age, gender, main language spoken at home (English or other

as a proxy for ethnic minority status), highest level of education, importance of religion or spirituality in their life, and combined pretax annual household income (in AU$20K brackets, as a proxy for socioeconomic circumstances).

Data handling and analysis

The analysis strategy was to determine which variables were (pairwise) correlated with self-stigma scores. All variables correlated with self-stigma were then entered into a linear regression, which accounts for overlap between possible predictors of self-stigma.

The only variable with missing data was the income question (28 missing cases). As income was not correlated with self-stigma based on the remaining 149 cases, no replacement of missing data was conducted. Other variables required some initial recoding. The most common responses for most problematic gambling form were: electronic gaming machines (EGMs; $n = 98$), sports betting ($n = 25$), and race betting ($n = 25$), so this variable was recoded into three dummy variables: other versus EGM, other versus sports betting, and other versus race betting.

Each potential independent variable was then correlated with the dependent variable (score on the Self-Stigma of Problem Gambling Scale) and with each other.

Independent variables that were significantly correlated with self-stigma, and not highly correlated with other independent variables, were then entered into a linear regression model.

Because some variables (e.g., education) were ordinal, both parametric and non-parametric correlations were run to test relationships between each independent variable and self-stigma, and both are presented for transparency (Table 2). As all variables entered into the linear regression were either binary or could be considered to be continuous, and since the results for the parametric and non-parametric correlations were essentially identical, only parametric analyses were used for subsequent analyses (Tables 3 and 4). Unstandardized and standardized results are presented for the regression. Assumptions for the regression model were checked and none were violated. Unless stated otherwise, an α of .05 was used throughout.

Ethics

The study procedures were carried out in accordance with the Declaration of Helsinki. The Institutional Review Board of the Southern Cross University Human Research Ethics Committee approved the study. All subjects were informed about the study and all provided informed consent.

Table 2. Parametric and non-parametric correlations between each independent variable and self-stigma ($N = 177$)

Independent variable	Higher score indicates	Pearson's correlations			Spearman's correlations		
		r	CI LL	CI UL	ρ	CI LL	CI UL
Gender	**Female**	**.31***	**0.19**	**0.44**	**0.33***	**0.20**	**0.46**
Age	**Older**	**.18***	**0.05**	**0.31**	**0.20***	**0.04**	**0.33**
Main language	Not English	.01	−0.13	0.15	−0.01	−0.16	0.15
Education	Higher level of education	.02	−0.13	0.16	0.01	−0.14	0.16
Importance of religion/spirituality	More importance	.12	−0.02	0.28	0.15	−0.01	0.29
Income	Higher combined income	−.03	−0.21	0.15	0.00	−0.16	0.17
Kessler 6 score	**Higher psychological distress**	**.44***	**0.30**	**0.58**	**0.42***	**0.28**	**0.55**
Public self-consciousness	Higher public self-consciousness	.09	−0.08	0.25	0.09	−0.07	0.24
Social anxiety	Higher social anxiety	.08	−0.09	0.22	0.06	−0.10	0.20
Self-esteem	**Higher levels of self-esteem**	**−.47***	**−0.59**	**−0.32**	**−0.45***	**−0.57**	**−0.31**
PGSI score	**Higher levels of problem gambling**	**.40***	**0.25**	**0.53**	**0.40***	**0.26**	**0.52**
EGM versus other	**Most problematic form is EGMs**	**.20***	**0.07**	**0.34**	**0.22***	**0.09**	**0.35**
Race betting versus other	**Most problematic form is race betting**	**−.21***	**−0.36**	**−0.06**	**−0.21***	**−0.36**	**−0.06**
Sports versus other	Most problematic form is sports betting	−.13	−0.28	0.02	−0.12	−0.26	0.02
Secrecy	**Stronger agreement using secrecy as a coping mechanism**	**.32***	**0.19**	**0.45**	**0.33***	**0.18**	**0.44**
Withdrawal	Stronger agreement using withdrawal as a coping mechanism	.06	−0.10	0.21	0.03	−0.13	0.18
Education	Stronger agreement using education as a coping mechanism	.07	−0.10	0.24	0.09	−0.06	0.24
Challenging	Stronger agreement using challenging as a coping mechanism	.07	−0.11	0.23	0.06	−0.11	0.22
Distancing	Stronger agreement using distancing as a coping mechanism	−.06	−0.23	0.11	−0.07	−0.22	0.11

Note. Bootstrapped 95% confidence intervals (lower limit and upper limit: CI LL and CI UL) using 1,000 draws. PGSI: Problem Gambling Severity Index; EGM: electronic gaming machine.
*$p < .05$. (also indicated with bold text).

Table 3. Parametric (Pearson's) correlations between, and mean and standard deviations for, self-stigma and independent variables considered for the regression model ($N = 177$)

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Self-stigma (DV) (1)	1								
Gender (2)	0.31*	1							
Age (3)	0.18*	0.36*	1						
Kessler 6 (4)	0.44*	0.10	0.07	1					
Self-esteem (5)	−0.47*	−0.09	0.05	−0.64*	1				
PGSI score (6)	0.40*	0.12	−0.10	0.44*	−0.38*	1			
EGM versus other (7)	0.20*	0.36*	0.21*	−0.06	−0.06	0.13	1		
Race betting versus other (8)	−0.21*	−0.29*	−0.09	−0.05	0.06	−0.04	−0.46*	1	
Secrecy (9)	0.32*	0.12	0.08	0.13	−0.24*	0.23*	0.15	−0.06	1
Mean	1.08	0.33	40.33	12.38	−0.28	17.04	0.56	0.14	3.29
Standard deviation	0.62	0.47	13.79	5.36	0.69	5.43	0.50	0.35	0.85

Note. Self-esteem and Kessler 6 are highly correlated with each other ($r = -.64$), causing multicollinearity issues for a multivariate model. Since self-esteem is more strongly correlated with self-stigma, Kessler 6 was removed from consideration for the linear regression. PGSI: Problem Gambling Severity Index; EGM: electronic gaming machine.
*$p \leq .05$.

Table 4. Linear regression model predicting self-stigma ($N = 177$)

Independent variables	Unstandard coefficients				Standard coefficients	p
	B	Standard error	CI LL	CI UL		
Intercept	−0.10	0.22	−0.57	0.32		.635
Gender (ref. = male)	**0.21**	**0.09**	**0.05**	**0.38**	**0.16**	**.026**
Age	**0.01**	**<0.01**	**<0.01**	**0.01**	**0.14**	**.033**
Self-esteem	**−0.30**	**0.06**	**−0.42**	**−0.19**	**−0.33**	**<.001**
PGSI score	**0.03**	**0.01**	**0.01**	**0.04**	**0.23**	**.001**
EGM versus other	−0.01	0.09	−0.19	0.15	−0.01	.875
Race betting versus other	−0.21	0.12	−0.50	0.04	−0.12	.083
Secrecy	**0.11**	**0.05**	**0.02**	**0.22**	**0.15**	**.018**

Note. Bold text indicates statistically significant predictors. CI LL: confidence interval lower limit; CI UL: confidence interval upper limit; PGSI: Problem Gambling Severity Index; EGM: electronic gaming machine.
Model $R^2 = .389$, $F(7, 169) = 15.40$.
$p < .001$.

RESULTS

Bivariate correlations with self-stigma

As Table 2 indicates, 20 independent variables were considered for inclusion in the model. The only sociodemographic variables significantly correlated with self-stigma were age and gender, with older people and females tending to have higher self-stigma. Of the psychological variables, the K-6 and self-esteem scales were significantly correlated with self-stigma. Those with higher levels of psychological distress tended to have significantly higher levels of self-stigma, as did those with lower levels of self-esteem. Public self-consciousness and social anxiety were not significantly correlated with self-stigma. For the problematic gambling variables, those with higher PGSI scores tended to display higher self-stigma, as did those whose most problematic form was EGMs (compared with other forms). Those whose most problematic form was race betting tended to have *lower* self-stigma than others. Sports betting as the most problematic form was not significantly correlated with self-stigma. For coping mechanisms, only secrecy was significantly and positively correlated with self-stigma.

Regression model predicting self-stigma

All variables significantly correlated with self-stigma were considered for inclusion in a regression model, to account for any overlap between these independent variables and their relationship with self-stigma. To check for possible issues with multicollinearity, tolerance was tested for each predictor. One variable was found to have low tolerance (K-6 scores), being correlated with another possible predictor (self-esteem, $r = -.64$, Table 3). The correlation between self-esteem and self-stigma was stronger than the correlation between K-6 and self-stigma, and thus K-6 was removed from the model. No further issues with multicollinearity were detected.

Together, the predictors in the model accounted for 38.9% of the variance in self-stigma. When controlling for all other variables in the model, higher levels of self-stigma were associated with: being female, being older, lower self-esteem, higher PGSI scores, and using secrecy as a coping mechanism (Table 4). Because the two most problematic form variables were significantly correlated with each other ($r = -.46$, Table 3), and neither were statistically significant, we tried removing each one from the final model, in case the

correlation between them was the reason that neither were significant. No matter which was removed, the remaining most problematic form variable was not significant. Examination of the standardized coefficients indicates that the strongest predictor in the model was self-esteem, followed by PGSI score.

DISCUSSION

The most commonly reported correlates of the self-stigma of mental illness are lower self-esteem, higher depression, and higher symptom severity (Boyd et al., 2014; Livingston & Boyd, 2010). This study found similar results in relation to the self-stigma of problem gambling, lending partial support to H_1. In this study, the strongest correlate of self-stigma was self-esteem, both in the bivariate and multivariate analyses. This result is consistent with 14 mental illness studies and meta-analyses reviewed by Boyd et al. (2014); with 30 of the 34 mental illness studies reviewed by Livingston and Boyd (2010); and with the one previous quantitative study of problem gambling stigma and self-esteem (Horch & Hodgins, 2015). Indeed, self-stigma and self-esteem have been so strongly linked in previous mental illness research that some authors conceptualize and define self-esteem decrement as an integral component of self-stigma (e.g., Corrigan & Watson, 2002; Corrigan et al., 2006; Scambler, 1998). These conceptualizations assume that self-stigma diminishes self-esteem, although it is possible that individuals with lower self-esteem are more vulnerable to self-stigma. Nevertheless, one longitudinal study found that self-stigma reduced self-esteem when measured at 4-month follow-up (Ritsher & Phelan, 2004). Qualitative research with people experiencing problem gambling also indicates that lower self-esteem is typically experienced as a consequence of self-stigma (Carroll et al., 2013; Hing, Nuske, Gainsbury, & Russell, 2016; Hing, Nuske, Gainsbury, Russell, & Breen, 2016). Overall, a reasonable conclusion is that the self-stigma of problem gambling is accompanied by diminished self-esteem and most likely contributes to it. Longitudinal research is needed to confirm this causal direction.

Our findings are also consistent with previously found links between self-stigma and depression. Fifteen studies reviewed by Boyd et al. (2014) found a significant positive relationship between the self-stigma of mental illness and depression, while self-stigma-predicted depression in Ritsher and Phelan's (2004) longitudinal study. Research also indicates high comorbidity between problem gambling and depression (Kessler et al., 2008, Petry, Stinson, & Grant, 2005; Thomas & Jackson, 2008). An Australian study found that 58.1% of respondents with gambling problems in a community sample, and 96% in a clinical sample, reported depression due to gambling (Productivity Commission, 1999). However, the degree to which depressive episodes are due to the self-stigma associated with problem gambling is unknown. This study confirms the link between the self-stigma of problem gambling and experiencing symptoms of depression and anxiety, as measured by the K-6, but not their temporal sequence. While self-stigma may contribute to psychological distress,

individuals with gambling problems who are also experiencing psychological adversity may instead be more vulnerable to self-stigma. Prospective research could identify causal pathways.

Our results also align with previous mental illness studies where symptom severity correlates with higher self-stigma. Livingston and Boyd (2010) found that higher symptom severity was significantly and positively associated with higher self-stigma in 50 of the 60 mental health studies they reviewed. Similarly, our results indicate that higher self-stigma tends to accompany higher problem gambling severity. Research into mental illness indicates that self-stigma is a powerful deterrent to treatment-seeking and adherence (Corrigan, 2004; Rusch, Angermeyer, & Corrigan, 2005), so the escalation of self-stigma as a gambling problem worsens may be one reason why help-seeking rates are as low as 10% among those with a severe gambling problem (Cunningham, 2005). Effective stigma reduction strategies, to reduce public stigma and to cope with self-stigma, could improve treatment-seeking for problem gambling. Interviews with gambling counselors also emphasized how self-stigma can lead to delayed help-seeking, anxiety about attending treatment, concerns about counselor attitudes, and fear of relapse (Hing, Nuske, Gainsbury, Russell, & Breen, 2016). These counselors maintained that addressing stigma early in treatment can improve treatment adherence and recovery.

Contrary to most results for other mental health conditions (Livingston & Boyd, 2010), female gender and older age were associated with higher self-stigma in this study, in partial alignment with H_2. This may be because gambling is a highly gendered activity (Hing, Russell, Tolchard, & Nower, 2016), whereas mental illness is not. Having a gambling problem is incompatible with women's historically defined gender roles as caregivers, nurturers, mothers, partners, and homemakers, and attracts judgments of being irresponsible, unrespectable, incompetent, and selfish (Casey, 2006; Holdsworth, Hing, & Breen, 2012). Failing to live up to societal gender expectations, these women can feel intense guilt, shame, and self-stigma (Hing, Nuske, Gainsbury, & Russell, 2016). Further, mature-aged women who gamble on EGMs are overrepresented among people with gambling problems (Crisp et al., 2004; Hing, Russell, Tolchard, & Nower, 2016; Welte, Barnes, Wieczorek, Tidwell, & Hoffman, 2007), and they can be stereotyped as bored, lonely old women. Our results suggest that this group is particularly vulnerable to internalizing self-stigmatizing beliefs and warrants particular attention in efforts to reduce the associated damaging effects.

The last key finding from this study is increased use of secrecy to cope with higher levels of self-stigma, supporting H_3, and previous problem gambling research (Horch & Hodgins, 2015). Secrecy is damaging because it impedes problem acknowledgement, recovery, and help-seeking (Nuske & Hing, 2013; Tavares, Martins, Zilberman, & el-Guebaly, 2002). It also creates heightened anxiety and stress through the vigilance and hard work needed to keep a spoiled identity hidden (Corrigan, Kosyluk, & Rüsch, 2013; Goffman, 1963). While disclosing a gambling problem risks social disapproval and discrimination, research into other stigmatized conditions points to some beneficial effects of "coming out," including reduced stress, better

relationships, greater family support, diminished self-stigma, and improved quality of life (Corrigan et al., 2010; Kadushin, 2000; Pachankis, 2007; Rosario, Hunter, Maguen, Gwadz, & Smith, 2001). People with a gambling problem have also reported great relief once they have finally disclosed their problem, with some being pleasantly surprised by the subsequent support received from significant others (Hing, Nuske, Gainsbury, & Russell, 2016). Efforts to reduce the public stigmatization of problem gambling and to promote the benefits of disclosure may encourage more "outing" of problem gambling as an affirming strategy to challenge self-stigma, in contrast to the avoidant and damaging strategies of secrecy and withdrawal (Corrigan et al., 2010). However, research is also needed into the drawbacks of disclosing a gambling problem.

Our findings should be interpreted within the following limitations. The sample was not representative of the broader population of people with gambling problems. Given the low prevalence of problem gambling in the population (0.6% in Australia; Hing, Gainsbury et al., 2014), gaining a representative sample was not considered feasible. Our survey recruited only respondents who acknowledged having a gambling problem, as we felt that meaningful responses could not be gained from people in denial; thus, the findings may not generalize to this latter group. The survey was cross-sectional, so causal directions could not be ascertained. While the Self Stigma of Problem Gambling Scale had excellent reliability, its other psychometric properties have not been evaluated. Finally, any research into stigma may be subjected to social desirability bias, although we attempted to minimize this by emphasizing respondent anonymity and the importance of providing honest responses.

CONCLUSIONS

This study has contributed to a deeper understanding of problem gambling stigma. In alignment with research into mental illness, higher self-stigma of problem gambling was linked to lower self-esteem, higher psychological distress, higher symptom severity, and greater likelihood of keeping the problem a secret. This suggests that the self-stigma of problem gambling may be driven by similar mechanisms as the self-stigma of other mental health disorders, and similarly impact on self-esteem and coping. Thus, self-stigma reduction initiatives used for other mental health conditions may be effective for problem gambling. These include interventions attempting to alter self-stigmatizing beliefs, and interventions that enhance coping skills through improving self-esteem, empowerment, and help-seeking behavior, including psychoeducation, cognitive restructuring, acceptance and commitment therapy, motivational interviewing, social skills training, and goals achievement (Mittal, Sullivan, Chekuri, Allee, & Corrigan, 2012).

It is difficult to make specific recommendations for how current self-stigma reduction efforts could be improved for problem gambling, as these efforts have not been widely documented. However, one qualitative study found that most gambling help counselors interviewed emphasized the importance of helping clients to overcome their self-stigmatizing beliefs, before gambling treatment could be effective (Hing, Nuske, Gainsbury, Russell, & Breen, 2016). They explained that lowering self-stigma was needed to establish confidence and trust in the counselor, restore self-esteem, enhance stigma coping skills, harness support from significant others, normalize relapse, and foster a belief that recovery is possible. Unlike the self-stigma of other mental illnesses, the self-stigma of problem gambling increased with female gender and older age which in turn are associated with EGM problems. These results indicate that this group should be a target population for efforts to reduce or better cope with self-stigma. Overall, however, research into the self-stigma of problem gambling is nascent. Further research is needed to confirm the current findings and to investigate optimal self-stigma reduction strategies for those with a gambling problem.

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