Validation of the Gambling Perceived Stigma Scale (GPSS) and the Gambling Experienced Stigma Scale (GESS)

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Abstract

Australian research shows that stigma is a major barrier to treatment seeking (Rockloff, 2004) and may impede the accurate measurement of problem gambling prevalence. To date, no validated tool is available to assess the stigma associated with gambling. This project investigated both internally experienced and externalised (perceived) stigma associated with gambling, as measured with two new survey instruments were developed for this purpose. We reviewed existing measures of stigma associated with other non-gambling behaviours (e.g., alcohol, drug abuse, smoking, eating disorders) to construct items that were conceptually related to gambling behaviour. The scales were then validated by using a large representative community sample ($N = 1366$). Internal reliability analysis, factor analysis, and multivariate analysis were used to analyse the results and to explore the measurement of perceived and self-stigma in a community sample, taking into account respondents' gambling experience and relevant socio-demographic information. Results supported a model of perceived stigma along two dimensions (Contempt and Ostracism) and a unidimensional model of experienced stigma. The scales were shown to have strong psychometric properties and to differentiate well between stigmas associated with recreational and problem gambling behaviours. A scale that measures stigma related to gambling behaviour will provide researchers, policymakers, industry bodies, and clinicians with a tool that contributes to a growing understanding of the gambling experiences of individuals and the impacts of gambling on communities.

Keywords: Gambling, stigma, scale, scale development, enacted stigma, perceived stigma, problem gambling

Résumé

Une étude australienne démontre que la stigmatisation est un obstacle important à la recherche de traitement (Rockloff, 2004) et peut nuire à la mesure exacte de la prévalence des problèmes de jeu. À ce jour, il n'existe aucun outil éprouvé permettant

d'évaluer la stigmatisation associée au jeu. Ce projet de recherche visait à étudier la stigmatisation éprouvée intérieurement et extériorisée (perçue) en lien avec le jeu au moyen de deux nouveaux questionnaires conçus à cette fin. Nous avons consulté des mesures existantes de la stigmatisation associée à d'autres comportements (consommation d'alcool ou de drogue, tabagisme, troubles alimentaires, etc.) afin de concevoir des questions conceptuellement rattachées au jeu. Les échelles ont été validées à partir d'un échantillon considérable et représentatif de la société ($N = 1366$). Les réponses aux questionnaires ont été soumises des analyses de la fiabilité interne, des facteurs et à variables multiples afin d'évaluer et de mesurer la stigmatisation perçue et auto-infligée au sein de l'échantillon étudié, tout en tenant compte des données sociodémographiques pertinentes et de l'expérience du jeu des répondants. Les résultats sont compatibles avec un modèle à deux dimensions (ostracisme et mépris) de la stigmatisation perçue et avec un modèle unidimensionnel de la stigmatisation éprouvée. Les échelles, dont les fortes propriétés psychométriques ont été démontrées, ont permis de bien distinguer les différentes formes de stigmatisation associées au jeu récréatif et au jeu pathologique. Une échelle de mesure de la stigmatisation liée au jeu constituera pour les chercheurs, les décideurs, les organismes du secteur du jeu et les cliniciens un outil contribuant à une compréhension accrue des expériences de jeu que peut vivre une personne et des conséquences sociales du jeu.

Introduction

In the 50 years since Goffman's (1963) seminal work on stigma, significant efforts have been made to refine the conceptualisation of stigma as a phenomenon, to explore the experience and effects of stigma, and to quantify the level of stigma associated with different stigmatising circumstances. In relation to gambling, stigma has consistently been identified as a barrier to treatment seeking for people experiencing problems with gambling (Gainsbury, Hing, & Suhonen, 2013; Pulford et al., 2009; Rockloff & Schofield, 2004; Suurvali, Cordingley, Hodgins, & Cunningham, 2009). However, the impact of stigma related to gambling is broader in that stigma affects individuals who experience problems with gambling before and beyond treatment, their friends and family, the measurement of problem gambling (PG) and gambling-related harm, and the conduct of research into gambling. Given this broader impact, an increased understanding of both the process of gambling-related stigma and the ability to quantify its impact will be of value. The present study relates to the quantification of this impact through the development and validation of a gambling-specific stigma scale.

Defining and Conceptualising Stigma

No universally accepted definition of stigma exists. Link and Phelan (2001) postulated that numerous definitions and conceptualisations of stigma have been

proposed, primarily because of the broad range of behaviours and conditions that stigma has been applied to and the influence of multiple disciplines having contributed to the research on stigma. For the present study, stigma is defined as the co-occurrence of labelling, stereotyping, separation, status loss, and discrimination in a context in which power is exercised (Hatzenbuehler, Phelan, & Link, 2013, p. 814). The present study also utilises Goffman's (1963) conceptualisation of stigma in terms of it being enacted, perceived, and internalised (felt). Each of these experiences of stigma is considered in relation to gambling and the ability of the characteristic to be incorporated into a scale.

Enacted stigma is defined as experiences of social discrimination (Luoma et al., 2007). This discrimination may occur in relation to gaining or maintaining employment, gaining or maintaining other resources such as housing, or being interpersonally accepted (Horch, 2011; Horch & Hodgins, 2008). Social discrimination is based on the labelling of the stigmatised condition and its subsequent association with undesirable characteristics or stereotypes (Link & Phelan, 2001), which then become associated with the individual such that he or she comes to be identified and judged by the label. In the case of gambling, one study identified common stereotypes to include labels such as impulsive, irresponsible, risk taking, and greedy, with individuals being perceived as less dependable, responsible, realistic, and self-controlled (Horch, 2011).

The experience of stigma can be described as that of perceiving or believing in the presence of stigmatising attitudes and/or actions in a society. Hence, it is the perception of stigma (whether or not it has been enacted) that affects the beliefs and subsequent behaviours of the person who gambles, regardless of the intent of others (Luoma et al., 2013). Consequently, in the present study, enacted stigma has been conceptualised within the construct of perceived stigma. Although the concept of enacted stigma is important in constructing a complete understanding of stigma, it was beyond the scope of the current investigation to objectively observe or measure incidents of enacted stigma, and self-reporting would be heavily influenced by social desirability bias (the desire to seem more positive or normal) and evaluation apprehension (the desire to avoid being evaluated negatively by investigators) and thus unlikely to produce accurate data. However, in line with the false consensus effect and social projection, an assessment of perceived stigma attributed by both non-gamblers and gamblers alike may be expected to reflect internally held attitudes and beliefs likely to be enacted (Ames, 2004; Dunning & Hayes, 1996; Krueger & Clement, 1997; Mullen et al., 1985; Nickerson, 1999; L. Ross, Greene, & House, 1977). Thus, perceived stigma may be a more effective measure in terms of outcomes.

The perception of stigma (an individual's beliefs about how others feel towards the stigmatised condition) may also contribute to internalising or personally applying these beliefs to oneself (Link, 1987), although this is not always the case (Luoma et al., 2013). The present study therefore focuses on perceived and internalised stigma.

Stigma and Gambling

Stigma has been identified as a barrier to both self-identification and help-seeking behaviour for PG (Cooper, 2001; Dhillon, Horch, & Hodgins, 2011; Pulford et al., 2009; Rockloff & Schofield, 2004; Suurvali et al., 2009; Suurvali, Hodgins, Toneatto, & Cunningham, 2012). Stigma as a barrier to help seeking is consistent with that in relation to numerous conditions, including, but not limited to, depression (Barney, Griffiths, Christensen, & Jorm, 2010; Calear, Griffiths, & Christensen, 2011; Castaldelli-Maia et al., 2011), HIV (Chaudoir et al., 2012; Derlega, Winstead, Gamble, Kelkar, & Khuanghlawn, 2010; Herek & Capitanio, 1999; Rutledge, Whyte, Abell, Brown, & Cesnales, 2011), mental health (Björkman, Svensson, & Lundberg, 2007; Gibbs, Rae Olmsted, Brown, & Clinton-Sherrod, 2011), alcoholism (Fortney et al., 2004; R. Gray, 2010; Smith, Dawson, Goldstein, & Grant, 2010), substance abuse (Room, 2005), abortion (Kumar, Hessini, & Mitchell, 2009), chronic illness (Cataldo, Slaughter, Jahan, Pongquan, & Hwang, 2011), obesity (Lillis, Luoma, Levin, & Hayes, 2010), suicide (Batterham, Calear, & Christensen, 2013), homelessness (Breakey, Fischer, Nestadt, & Romanoski, 1992), and incarceration (LeBel, 2012; Murray, 2007). Also consistent with stigma in these conditions, stigma related to gambling can vary depending on factors such as gender, culture, education, and location (Carroll, Rodgers, Davidson, & Sims, 2013; Cooper, 2001; Dhillon et al., 2011; Horch, 2011; Horch & Hodgins, 2008, 2013; Scull & Woolcock, 2005).

This impact of stigma on help-seeking behaviour alone can be seen to contribute significantly to the population level harm caused by PG. Current estimates of PG prevalence within the Australian population are about 1%, with a further 1.4% to 2.1% considered to be at risk (Productivity Commission, 2010). However, only a small proportion of people experiencing problems with gambling seek professional help, estimated at between 8% and 17% (Productivity Commission, 2010; Suurvali, Hodgins, Toneatto, & Cunningham, 2008). The low numbers of people experiencing problems with gambling who seek professional assistance in Australia is consistent with overseas findings (Suurvali et al., 2008), but these rates are lower than for other mental health disorders (Gainsbury et al., 2013), which are estimated at about 46% (Whiteford et al., 2014).

A number of reasons for people avoiding treatment have been offered, including denial (Hardoon, Derevensky, & Gupta, 2003; Pulford et al., 2009; Rockloff & Schofield, 2004; Suurvali et al., 2009, 2012), pride (Pulford et al., 2009), a desire to deal with problems without professional help (Gainsbury & Baszczynski, 2011; Gainsbury et al., 2013; McMillen, Marshall, Murphy, Lorenzen, & Waugh, 2004; Rockloff & Schofield, 2004), and perceived stigma resulting in experiences of shame or embarrassment (Carroll et al., 2013; Gainsbury et al., 2013; Horch, 2011; Pulford et al., 2009; Rockloff & Schofield, 2004). However, evidence of a reduction in harm has been reported for those who engage in treatment for PG, whereas delaying intervention may lead to increased complexity and co-morbidity (K. Gray, Oakley Browne, & Radha Prabhu, 2007; Pallesen, Mitsem, Kvale, Johnsen, & Molde, 2005; Soberay, Faragher, Barbash, Brookover, & Grimsley, 2013; Toneatto & Ladoceur, 2003). Therefore, there are clear

benefits associated with addressing barriers to help-seeking behaviour at an individual and population level.

Although the intent and application of stigma measurement across health and social conditions has been diverse, few studies to date have been done in the area of gambling stigma, and they have tended to use modified versions of existing stigma measurement tools that relate to other conditions such as mental illness and substance abuse (Horch, 2011; Horch & Hodgins, 2008). A critical step in evaluating efforts to reduce stigma is the development, validation, and consistent use of scales that can measure the effect (Stangl, Lloyd, Brady, Holland, & Baral, 2013). To date, a single, validated scale that can measure the different forms of stigma specific to gambling does not exist. The present study sought to address this gap by developing and validating a gambling-specific stigma scale.

Conceptual Framework

We adopted a conceptual framework proposed by E. E. Jones et al. (1984) in order to provide structure to our review of existing stigma scales that are related to other conditions. Recognising the uniqueness of stigmatised conditions, E. E. Jones et al. (1984) proposed six dimensions that captured the variability in how stigma has been identified in the literature and previously used in scale development and evaluation (Barney et al., 2010). The six dimensions are concealability, course, disruptiveness, aesthetic qualities, origin, and peril (E. E. Jones et al., 1984).

The dimension of concealability is concerned with whether the condition or behaviour is obvious to others and the extent to which that visibility can be controlled by the individual. This dimension is relevant to gambling behaviours because they are generally easily concealed, some more so than others. Furthermore, research suggests that the concealable nature of gambling is of significance to those experiencing problems with gambling and may enable the behaviours (Horch & Hodgins, 2008).

Course, as a dimension, is concerned with the perceived pattern of change, outcome, or life course of the condition or behaviour. For example, stigma associated with mental illness frequently references the belief that the condition is permanent (Björkman et al., 2007). This dimension is of relevance to gambling because of misconceptions related to life course (that all gamblers will become problem gamblers), or permanence (once a gambler, always a gambler). The misconceptions in relation to permanence are of particular importance in understanding beliefs that may hinder treatment seeking and helping behaviours among social support networks (Horch, 2011; Suurvali et al., 2009).

The dimension of disruptiveness refers to the extent to which the condition or behaviour can hinder interpersonal interaction and communication. This is of particular relevance to gambling, which requires the investment of time away from other activities and has been identified as being a fundamental cause of harm experienced by family and friends of those who experience problems with gambling (Darbyshire, Oster, & Carrig, 2001; Dickson-Swift, James, & Kippen, 2005;

Dowling, Smith, & Thomas, 2009; Ferland et al., 2008; Gaudia, 1987; Lesieur & Rothschild, 1989; McComb, Lee, & Sprenkle, 2009; Wurtzburg & Tan, 2011).

Aesthetic qualities reflect the extent to which the person with the condition or behaviour becomes less attractive or more repellent as a function of that condition or behaviour. For example, physical attributes associated with obesity may lead to perceptions of laziness, poor hygiene, and unattractiveness (Lillis et al., 2010), whereas stigma associated with homelessness is grounded heavily in the aesthetic dimension because of difficulties involved in accessing the resources to attend to cleaning and grooming (Phelan, Link, Moore, & Stueve, 1997). In relation to gambling stigma, it has been postulated that the aesthetic dimension may centre more on character (perceptions of greed, laziness, or irresponsibility) than on physical appearance.

The dimension of origin reflects perceptions of the circumstances under which the condition or behaviour originated, including attributions of responsibility for the condition. Research has found that attributions of individual responsibility are often associated with stigma for particular conditions (Weiner, Perry, & Magnusson, 1988) such as HIV (Kalichman et al., 2009; Rutledge et al., 2011) and lung cancer (Cataldo et al., 2011), as well as with behaviourally based stigmas associated with alcoholism (Peluso & Blay, 2008) and abortion (Kumar et al., 2009). This dimension has a strong influence on internalisation of responsibility and can be a barrier to both treatment seeking and offering support (Derlega et al., 2010; Horch, 2011). The attribution of the origin of the behaviour is highly pertinent to stigma associated with gambling. Origin in relation to gambling relates to how the gambling behaviour started and progressed, as well as the degree to which the responsibility for gambling problems can be attributed to individual factors (e.g., weakness of character), or situational factors (e.g., exposure to negative role models, the need to escape stressful life events). Attribution theory suggests that when an individual's condition or behaviour is considered to be under the individual's control, or the individual is responsible, others are more likely to withhold help and avoid the person (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003; Weiner et al., 1988). These behavioural responses are related to the feelings of anger towards the affected individual. Conversely, if the condition is considered to be due to situational rather than individual factors, then there may be feelings of pity towards the person, which can result in helping behaviours (Corrigan, River, et al., 2001).

Peril reflects the perceived likelihood, imminence, or severity of danger to others. Danger to others is commonly associated with incarceration (LeBel, 2012), mental illness (Björkman et al., 2007), alcoholism, and substance abuse (Peluso & Blay, 2008; Room, 2005; Schomerus et al., 2011). Although perceived risk or danger in relation to violence or physical harm may not be of relevance to gambling (Afifi, Brownridge, MacMillan, & Sareen, 2010), stigma associated with gambling behaviours related to the dimension of peril may be reflected by assumptions of criminal behaviour (e.g., theft), financial risk, the impact on the family's well-being, or dishonesty.

Compatibility of Other Fields of Stigma Research

We assessed stigma associated with a range of conditions and behaviours in other fields of research in terms of its compatibility with E. E. Jones et al.'s (1984) framework. The fields (or conditions) considered for inclusion were mental health, drugs and substance abuse, HIV, incarceration, homelessness, chronic diseases, obesity, abortion, and suicide.

Of the fields examined, the stigma associated with mental health, alcohol, and substance abuse were seen to be most readily comparable to gambling-related stigma on all six dimensions of the framework (concealability, course, disruptiveness, aesthetic, origin, and peril). Their relevance to the current study was also considered in terms of the existing conceptualisation of PG as a mental illness that can be diagnosed in accordance with the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013), or as an addictive behaviour.

Problem gambling shares a number of common characteristics with alcohol and substance abuse that are of relevance to the experience of stigma associated with the condition. People experiencing these conditions commonly have high rates of co-morbidities and co-stigmas (Corrigan et al., 2005; Poon, Saewyc, & Chen, 2011; Raley, 2012) complex causal relationships for the condition(s) (Crawford, Rudolph, Jones, & Fuller, 2012; Room, 2005), often present to health services for other issues (Aviram, 2006), cultural differences (Gibbs et al., 2011), and differing levels of stigma, depending on the type of product consumed (Crawford et al., 2012; Palamar, Kiang, & Halkitis, 2012). Like gambling, alcohol and substance abuse are also considered adaptive disorders, with stigma affecting issues such as treatment seeking (Fortney et al., 2004; Gibbs et al., 2011), relapse (Harris & McElrath, 2012), and poorer health outcomes (Ahern, Stuber, & Galea, 2007; Anitha, 2007; R. Gray, 2010; Smith et al., 2010). Emerging areas of common relevance also exist in terms of increased accessibility and availability, as well as influence on youth (Aviram, 2006; Palamar et al., 2012). Further similarities exist in terms of attribution of responsibility, in which the person with the addiction is portrayed or viewed as personally responsible for the condition and viewed more unfavourably than those with other stigmatising conditions (Corrigan, Kuwabara, & O'Shaughnessy, 2009; Palamar, 2010; Raley, 2012). Work already undertaken on developing scales to measure stigma related to alcohol and substance abuse also informed the present study in terms of providing methodological guidance on managing the differences between the products being consumed, cultural differences, and even the stigmatisation of treatment facilities.

Method

Identification of Existing Stigma Scales

To inform the development of the scale, we narrowed the literature review to identify existing measurement tools in the relevant conditions of stigma. Searches were undertaken in both psychology and health databases by using search terms that

included alternate names of the stigmatised conditions or behaviours and the terms "stigma," "stigma AND scale," "scale AND development," and "stigma AND measurement." Additional studies were identified by using a snowballing method, and grey literature was searched by using Google Scholar. Only studies that were written or translated into English were included.

From an initial scan of the title and abstract, 90 papers were identified as being of potential relevance, of which 64 included a stigma measurement tool. This list was further reduced to 27 papers of relevance with 15 scales identified. Exclusion criteria consisted of the scale being misaligned with the conceptual framework or including items that were not easily adapted to describe gambling or PG behaviours.

The 15 scales were then considered against the following inclusion criteria: the scale was readily available, it mapped onto multiple dimensions of the conceptual framework that had been adopted, it had some or all psychometric properties published in the same or in a separate article, and it had been used in at least two other studies. If a scale was found to have items that were easily transferable to the gambling context and had unique properties not used by other scales, it was also considered for inclusion. From the group of 15 scales, eight met the inclusion criteria (see Appendix A).

Bogardus' Social Distance Scale was also considered for inclusion, in addition to modified versions of it (Butler & Gillis, 2011; Feldman & Crandall, 2007; Horch, 2011; Norman, Windell, & Manchanda, 2012); however, the scales already chosen for the present study included sufficient items to capture measures of social distance. Examples of these items include "Most people would be willing to accept a former mental patient as a close friend" (Link, 1987) and "I do not want to live next door to another depressed person" (Kanter, Rusch, & Brondino, 2008).

Item Selection

Over 150 items from the eight identified scales were mapped against the framework's six dimensions and also categorised as perceived or self-stigma. The categorisation of the items against the framework was then validated by a sorting task undertaken by a group of psychologists and post-graduate students. The results of the task were used to refine the alignment of the dimensions with the framework and to reduce the number of items where there was substantial disagreement. A further reduction in items was achieved by removing items based on repetition, relevance to the dimension, and practicality. This resulted in a final pool of 36 items that were relevant to the perceived stigma of gambling and a further 18 items that were relevant to the experienced (self) stigma of gambling. The final item pools in the perceived and experienced stigma scales were then validated in a large population sample.

Participants

A total of 1,370 Australian adults (50.6% female) participated in the Australian Health and Social Sciences (AHSS) survey administered by the Population Research

Laboratory at Central Queensland University. The AHSS survey comprises a panel of Australian adults randomly recruited from each state and territory via computer-assisted telephone interviewing to be part of a longitudinal study panel. Panel members provide basic demographic information and sufficient background information to be screened for more specific subsamples and are invited to take part in regular AHSS surveys throughout the year. At the commencement of the current study, there were 3,165 AHSS panel members (response rate 44.96%). Participants ranged in age between 19 and 92 years (M = 58.89, SD = 12.68). A further 53 respondents logged onto the survey but exited prior to completion and have been excluded from this analysis.

Materials

Gambling Perceived Stigma Scale (GPSS). The GPSS consisted of 36 items adapted from existing stigma scales, as outlined in previous sections, with six items assessing each of the six dimensions of stigma: concealability, course, disruptiveness, aesthetics, origin, and peril (Barney et al., 2010; E. E. Jones et al., 1984). Within each dimension, three items measured perceived stigma associated with recreational gamblers and the remaining three items were targeted towards stigma associated with those experiencing gambling problems (18 total items each). An alternate form was also constructed in which the target of the probes (recreational/problem gamblers) was reversed. Each item was measured on a scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), with higher scores indicating greater endorsement of stigmatised views. Items were pre-tested by the researchers and assigned to the dimensions of stigma on the basis of a sorting task performed by staff members and post-graduate students (not reported here).

Gambling Experienced Stigma Scale (GESS). The GESS consisted of 18 items measuring respondents' own experiences of stigma, with three items assessing each of the six dimensions of stigma (E. E. Jones et al., 1984). Scoring of items was identical to that of the GPSS, although no alternate form was used.

Consumption Screen for Problem Gambling (CSPG). The CSPG is a three-item measure of gambling consumption rather than harm (Rockloff, 2012). Scores range from 0 to 13, with scores of 4 or more defined as the cut-off point for identifying individuals likely to be experiencing gambling problems. The scale is high in internal consistency (Cronbach's α =.93), with corrected item-total correlations for the three CSPG questions of .83, .87, and .94.

Problem Gambling Severity Index (PGSI). The PGSI is a nine-item measure of PG risk from the CPGI (Ferris & Wynne, 2001). The scale is intended for use within a general population (rather than as a clinical tool), with items measured on a 4-point scale ranging from 0 (*never*) to 3 (*almost always*). PGSI scores range from 0 to 27, with scores of 8 or more reflecting high risk of PG. Reliability of the PGSI has been reported as adequate in terms of both internal consistency (Cronbach's α =.84) and test-retest reliability (r =.78).

Attitudes Towards Gambling Scale (ATGS; Orford, Griffiths, Wardle, Sproston, & Erens, 2009). The ATGS consists of 14 statements, each expressing an attitude towards gambling, with five response options ranging from strongly agree to strongly disagree. Items are independent of specific policy issues or forms of gambling (e.g., wagering vs. electronic gaming machines). The scale produces a score ranging between 14 and 70; a score of 42 indicates an approximately neutral attitude, scores below 42 indicate progressively negative attitudes, and scores higher than 42 are increasingly favourable. The scale is reported to be high in internal reliability, Cronbach's α =.88, with item-total correlations ranging from .43 to .64 (Donaldson et al., 2015; Orford et al., 2009).

Demographics. Recorded demographic items included age, sex, marital status, country of birth, identified nationality, state of residence, education, employment status, personal and family income, and health problems.

Procedure

The online survey was administered with SSI Web V7 by Sawtooth Software. Respondents first completed the 18 recreational gambling (RG) items of the GPSS, followed by the 18 PG items. Randomisation features in SSI Web were used to allocate respondents to alternate forms of the GPSS, as described in the previous section. A total of 682 respondents completed Version 1 of the survey, and a 688 completed Version 2. Those who indicated having gambled during the past 12 months (not including lotteries, scratch tickets, or raffles) then completed the 18 items of the GESS, followed by the CSPG, the PGSI, the ATGS, and demographic items. Participants who indicated not having gambled during the previous 12 months were directed to the ATGS and demographic items, but did not complete the GESS, CSPG, or PGSI.

Results and Discussion

Gambling Perceived Stigma Scale

A number of approaches for determining factor structure exist (Revelle, 2015; Revelle & Rocklin, 1979; Velicer, 1976). Unfortunately, mathematical criteria for deciding which is optimal do not exist, and each method often gives different results. This was true in the present analysis, in which exploratory factory analysis (EFA) using the Very Simple Structure (VSS) Complexity 1 metric suggested that one factor be retained, the VSS Complexity 2 metric suggested two, Velicer's Minimum Average Partial test indicated three, and the Bayesian information criterion suggested eight. The eigenvalue distribution (scree plot), considered with respect to eigenvalues generated from random permutations of the data (parallel analysis) showed two clear factors and a marginal third factor, along with a number of factors only marginally above the random threshold. From this result, we tended towards the interpretation that the data suggested a complex and potentially hierarchical structure, and thus an iterative approach of considering several factor analytic

solutions based on interpretability should be followed. We therefore examined the pattern matrix for various numbers of extracted factors. However, although factor structure was apparent, items within data-driven factors did not usually agree with the proposed six dimensions, and no solution stood out as markedly more interpretable than others.

Identifying Coherent Dimensions of Stigma

An EFA-oriented analysis suggested that there was meaningful covariance structure in the stigma items. However, the structures identified did not necessarily correspond with the hypothesised dimensions, and some items clearly performed poorly. Therefore, we put aside the criteria of identifying a model in the covariance cluster that matched the hypothesised clusters and focused instead on identifying coherent item clusters, without regard to the original intent of the item. Accordingly, we adopted an approach to scale development called ICLUST, which iteratively combines items based on maximising both coefficient alpha (reliability) and coefficient beta (homogeneity). Although not as widely used as EFA, ICLUST has features that can make complex scale development problems far more tractable (Cooksey & Soutar, 2006).

Using this procedure, we identified two groups of items with local maxima of both beta and alpha (Table 1). The first group appeared to be centred on a negative judgement of the personal (psychological) deficits of the gambler and might be labelled "Contempt." On the basis of the dual subset method for calculating the covariance, this group possessed good properties of alpha (=.89) and beta (=.86).

Table 1

Standardised Loadings (Pattern Matrix) Based Upon the Correlation Matrix for EFA on the GPSS Using All 14 Items

	b_1	b_2	h^2
Most people think gamblers are liars.	.72		.52
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.70		.61
Most people think that gamblers tend to be unreliable.	.83		.72
Most people think gamblers are unable to handle responsibility.	.81		.65
Most people think gamblers are lazy.	.69		.44
Most people think gamblers are greedy.	.59		.31
Most people believe people who gamble have no self-control.	.76		.53
Most people think that gamblers tend to be irresponsible.	.30	.47	.48
Many people would be uncomfortable communicating with a gambler.		.66	.44
Most people think less of a person that gambles.		.72	.53
Most people would not hire a gambler to take care of their children.		.65	.47
Most people would be suspicious of a person if they knew they were a gambler.		.81	.64
Most people would not want to enter into a committed relationship with someone they knew gambled.		.68	.41
Many people would avoid a person who gambles.		.78	.60

Note. N = 1,423. b < .20 suppressed. EFA = exploratory factor analysis; GPSS = Gambling Perceived Stigma Scale.

The second group, concerned with avoidance and distrust, might be labelled "Ostracism." This group possessed good properties of alpha (=.87) and beta (=.82). Items within these two groups were retained and analysed by using polychoric EFA. In sum, the initial pool of 36 items was reduced to 14 items by using the bottom-up ICLUST item clustering procedure. Although the procedure was entirely based on optimising psychometric criteria, subsequent inspection of the items corresponding to item subsets with the best psychometric properties also appeared to show good face validity regarding two stigma-related constructs.

As Table 1 shows, the restricted set of 14 items has a clear two-dimensional factor structure, with good face validity for all items except one: "Most people think that gamblers tend to be irresponsible." This item, nominally part of the Ostracism cluster, has poor face validity for this construct. It is also the only item that shows a split loading between the two factors. With its removal, all items in both constructs have high face validity. With this item removed (see Table 2), an EFA on the remaining set of items showed strong psychometric properties, with strong homogeneous loadings of items on factors and a low root mean square residual (RMSR) of 0.04. The fit, based on off-diagonal values, is 0.99, and the correlation of scores with factors is .95 and .94 for Contempt and Ostracism, respectively. However, these measures should be understood to be indicative only, as they are subject to positive bias because of being applied post hoc to the same dataset used to determine the item subsets. There is a moderately strong correlation of .65 between the two factors, which strongly suggests that a global stigma score is also meaningful. Accordingly, we proceeded to work with this subset of items, and this latent factor structure, for subsequent analyses.

Table 2

Standardised Loadings (Pattern Matrix) Based Upon the Correlation Matrix for EFA on the GPSS Using 13 Items

	b_1	b_2	h^2
Most people think gamblers are liars.	.70		.52
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.83		.62
Most people think that gamblers tend to be unreliable.	.81		.72
Most people think gamblers are unable to handle responsibility.	.69		.65
Most people think gamblers are lazy.	.58		.44
Most people think gamblers are greedy.	.76		.31
Most people believe people who gamble have no self-control.			.53
Many people would be uncomfortable communicating with a gambler.		.68	.46
Most people think less of a person that gambles.		.71	.52
Most people would not hire a gambler to take care of their children.		.64	.47
Most people would be suspicious of a person if they knew they were a gambler.		.80	.64
Most people would not want to enter into a committed relationship with someone they knew gambled.		.67	.40
Many people would avoid a person who gambles.		.77	.60

Note. N = 1,423. $b < .20$ suppressed. EFA = exploratory factor analysis; GPSS = Gambling Perceived Stigma Scale.

Item Response Theoretic Modelling of the Two-Factor Solution

The previous analyses were exploratory and directed at establishing dimensionality and obtaining and verifying items for subdimensions of stigma. It was therefore necessary to use heuristic techniques and algorithms for working with the covariance matrix, defining non-parametric measures of association, accounting for variance due to PG versus RG, and selecting items (ICLUST). Having determined a candidate optimal solution, the next step was to evaluate this solution through a full parametric model. The ideal model should treat the ordinal Likert response parametrically while simultaneously estimating an effect for whether the subject of the item is PG or RG. Modern structural equation modelling (SEM), using ordinal logistic functions for the Likert measures, provides a flexible framework for implementing such a model. Using a diagonally weighted least squares estimator, we were able to define what amounts to an item response theoretic (IRT) graded response model for each of the Likert scale items, assuming two correlated latent factors of Ostracism and Contempt. This model assumes an ordered logit regression model potentially incorporating a unique slope and a set of three intercepts (corresponding to boundaries between each Likert response category) for each response. Additionally, a beta coefficient capturing the effect of the item target (RG/PG) may be incorporated as a predictor of each item individually, or constrained to be equal for one or both latent factors. Finally, item factor loadings may be free to vary, accommodating the heterogeneity of items. Alternatively, they may be fixed to be constant, which assumes homogeneity of item discrimination (i.e., per a Rasch analysis). If this assumption holds, it has strong positive implications in terms of yielding a scale that is designed to be summed across items. Analyses were conducted by using the R statistical programming environment (R Core Team, 2013), and the *lavaan* (for ordinal SEM), *ltm* (IRT), and *psych* (EFA and other psychometric routines) packages.

Table 3 summarises the beta coefficients and variances of a SEM model with differential item factor loadings, differential coefficients for the effect of RG/PG, and variable item thresholds. The model was a good fit to the data, with standardised root mean square residual (SRMR) = .039, root mean square error of approximation (RMSEA) = .055, and comparative fit index (CFI) = .993. The item factor loadings are homogeneous at about 1, which reflects the criteria upon which the items were selected. For the most part, the effect of RG/PG was also relatively homogeneous across items, except for one: "Most people think gamblers are greedy." That is, although attitudes towards problem gamblers were generally uniformly more negative than those towards recreational gamblers, respondents did not feel that problem gamblers were greedier than recreational gamblers. The response level thresholds for the items varied somewhat, suggesting that, to some degree, the items probed differential degrees of stigma. Correlation between the latent factors with this framework was .328, slightly less than in the prior analysis.

The results from the initial SEM model suggested a simpler IRT model was plausible, in which item factor loadings were constrained to be homogeneous and a

Table 3

Beta Coefficients and Variances of SEM of GPSS Items: Item Factor Loadings, Differential Coefficients for the Effect of RG/PG, and Variable Item Thresholds

	Loadings			Regression Response (PG vs. RG target)			Thresholds			Variances	
	Est.	SE	z	Est.	SE	z	1.	2.	3.	Est.	SE
Contempt (Factor 1)										.54	.02
Most people think gamblers are liars.	1.00			.54**	.06	-9.36	-1.82**	-.61**	.81**	.46	
Once they know a person is a gambler, most people will take his or her opinion less seriously.	1.12**	.03	45.32	.40**	.06	-6.90	-1.72**	-.42**	1.14**	.33	
Most people think that gamblers tend to be unreliable.	1.19**	.03	47.37	.43**	.06	-7.33	-1.88**	-.81**	-.81**	.24	
Most people think gamblers are unable to handle responsibility.	1.09**	.02	44.69	.45**	.06	-7.67	-1.78**	-.44**	-.97**	.37	
Most people think gamblers are lazy.	.93**	.03	35.14	.28**	.06	-4.72	-1.09**	.53**	1.74**	.54	
Most people think gamblers are greedy.	.76**	.03	26.00	.01	.06	-1.7	-.96**	.51**	1.71**	.69	
Most people believe people who gamble have no self-control.	.96**	.02	39.54	.32**	.06	-5.40	-1.91**	-.88**	.72**	.51	
Ostracism (Factor 2)										.49	.03
Many people would be uncomfortable communicating with a gambler.	1.00			.34**	.06	5.86	-.76**	.84**	2.38**	.51	
Most people think less of a person that gambles.	1.03**	.03	32.17	.32**	.06	5.50	-1.13**	0.12	1.78**	.48	
Most people would not hire a gambler to take care of their children.	1.01**	.03	30.19	.24**	.06	4.20	-1.05**	.31**	1.60**	.50	
Most people would be suspicious of a person if they knew they were a gambler.	1.15**	.03	34.34	.28**	.06	4.81	-1.30**	-.08	1.58**	.35	
Most people would not want to enter into a committed relationship with someone they knew gambled.	.90**	.04	25.31	.46**	.06	7.57	-1.27**	-.011	1.34	.60	
Many people would avoid a person who gambles.	1.11**	.03	33.17	.47**	.06	8.00	-.92**	.61**	2.09**	.39	

Note. $N = 1,423$. SEM = structural equation modelling; GPSS = Gambling Perceived Stigma Scale; RG = recreational gambling; PG = problem gambling
$* p < .01$, $** p < .001$.

single beta coefficient was specified for the effect of the RG/PG item target, with the exception of the "greedy" item, in which the effect of RG/PG was assumed to be zero. The imposition of these assumptions led to a significant decrease in fit. However, more meaningful fit measures deteriorated only moderately: SRMR = .071, RMSEA = .094, and CFI= .971. Over 50% of variance in items in both scales was explained by the latent scores in the more constrained model. The global beta coefficient for RG/PG was 0.344, which may be interpreted as an odds ratio in much the same way as binary logistic regression. For any division of the categories of Likert item responses, the odds of making a higher response were 1.41 times greater than a lower response if the target of the probe was PG, rather than RG. Given the Likert response categories, this might be characterised as a moderately large effect, signifying significantly greater perceived stigma towards problem gamblers than recreational gamblers.

From these analyses, we concluded that the two scales had satisfactory psychometric properties and were suitable for summation and further analysis as aggregate scales. However, from the merely moderate correlation and the conceptual differences between the two factors, one could argue as to whether it is meaningful to combine them in a single global stigma scale. Nevertheless, for the combined scale, Cronbach's alpha was .87, and worst split-half reliability (beta) was .67. The discrepancy between these coefficients reflects the bi-dimensionality of the derived scale. The high Cronbach's alpha indicates that the global stigma scale is a reliable instrument. Table 4 summarises the item statistics and item reliability metrics for the combined scale. Each item had a satisfactory and similar correlation with the total scale. In Table 4, the scale statistics if the item was removed also show that no clearly underperforming items exist with respect to the total scale. However, it is likely that a briefer version of the scale could be generated by successively dropping items until the reliability coefficient dropped markedly. Table 5 summarises the base response frequencies for each of the items in the final scale. It illustrates the variation response thresholds for the scale items, with some items reflecting lower levels of the attitudinal dimension and others reflecting higher levels.

Item information curves were generated for each of the scales, confirming the numerical results that indicated only moderate variability in the location parameter information for items within scales. That is, there tended to be no items that provided information only at the extreme end of the latent response; all items tended to provide information throughout the typical range of variation for the response.

Gambling Experienced Stigma Scale (GESS)

Initial development of the GESS. The goal was to reduce the 18 candidate questions into a limited set of items that described one or more dimensions of stigma experienced in relation to one's own gambling. We followed a similar series of steps to refine the GESS regarding one's own experience related to gambling stigma. The task was substantially simplified by the fact that there were no complexities with respect to whether RG versus PG was the target. However, fewer data were available

Table 4
Item Statistics and Item Reliability Metrics for the Combined GPSS

	Item Statistics					Scale Statistics if Item Removed				
	r	r(cor)	r(drop)	M	SD	a	SE	G6 (smc)	r(ave)	S/N
Most people think gamblers are liars.	.64	.61	.57	2.3	.82	.86	.01	.88	0.34	6.3
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.70	.69	.64	2.3	.77	.86	.01	.87	0.34	6.1
Most people think that gamblers tend to be unreliable.	.72	.71	.66	2.5	.79	.86	.01	.87	0.33	6.0
Most people think gamblers are unable to handle responsibility.	.69	.67	.63	2.3	.78	.86	.01	.87	0.34	6.1
Most people think gamblers are lazy.	.60	.56	.52	1.9	.69	.87	.01	.88	0.35	6.4
Most people think gamblers are greedy.	.53	.47	.43	2.1	.74	.87	.01	.88	0.36	6.7
Most people believe people who gamble have no selfcontrol.	.63	.59	.55	2.7	.78	.86	.01	.88	0.35	6.3
Many people would be uncomfortable communicating with a gambler.	.60	.55	.51	2.3	.70	.87	.01	.88	0.35	6.4
Most people think less of a person that gambles.	.61	.57	.52	2.7	.73	.86	.01	.88	0.35	6.4
Most people would not hire a gambler to take care of their children.	.62	.58	.53	2.5	.79	.86	.01	.88	0.35	6.4
Most people would be suspicious of a person if they knew they were a gambler.	.66	.63	.58	2.8	.72	.86	.01	.88	0.34	6.2
Most people would not want to enter into a committedrelationship with someone they knew gambled.	.53	.48	.43	3.0	.76	.87	.01	.88	0.36	6.7
Many people would avoid a person who gambles.	.64	.64	.55	2.6	.73	.86	.01	.88	0.34	6.3

Note. N = 14. GPSS = Gambling Perceived Stigma Scale. *r(cor)* = item whole correlation corrected for item overlap and scale reliability. *r(drop)* = Item whole correlation for this item against the scale without this item. *r(ave)* = the average inter-item correlation if item is removed.

Table 5
Subscale Summary Statistics and Response Proportions for Each Item of the GPSS

	Min.	Max.	1st Quartile	3rd Quartile	M	Med.	SD
Ostracism (PG)	1	4	2.5	3	2.77	2.83	.50
Ostracism (RG)	1	4	2.17	2.83	2.44	2.50	.53
Contempt (PG)	1	4	2.14	2.71	2.44	2.43	.53
Contempt (RG	1	4	1.86	2.57	2.19	2.29	.58

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
Most people think gamblers are liars.	.17	.41	.36	.06
Once they know a person is a gambler, most people will take his or her opinion less seriously.	.14	.43	.38	.04
Most people think that gamblers tend to be unreliable.	.11	.32	.49	.08
Most people think gamblers are unable to handle responsibility.	.14	.45	.36	.05
Most people think gamblers are lazy.	.25	.57	.16	.02
Most people think gamblers are greedy.	.21	.54	.22	.03
Most people believe people who gamble have no self-control.	.08	.27	.54	.12
Many people would be uncomfortable communicating with a gambler.	.10	.52	.34	.03
Most people think less of a person that gambles.	.06	.30	.54	.10
Most people would not hire a gambler to take care of their children.	.08	.40	.41	.11
Most people would be suspicious of a person if they knew they were a gambler.	.04	.27	.56	.13
Most people would not want to enter into a committed relationship with someone they knew gambled.	.03	.19	.52	.26
Many people would avoid a person who gambles.	.06	.41	.45	.09

Note. N = 1,423. GPSS = Gambling Perceived Stigma Scale; RG = recreational gambling; PG = problem gambling; Min. = minimum; Max. = maximum; Med. = median; S/W = somewhat.

to test the scale because the information available for psychometric development was limited to those who did gamble and indicated a positive degree of own-gambling stigma. A total of 403 cases fulfilled these criteria. Of the Likert scale responses in the 403 × 18 item responses, 63% were the minimum value, which gives an indication of the low means and positive skew observed for the items. The 403 person subsample included 306 recreational, 48 low-risk, 37 medium-risk, and 12 problem gamblers. The high preponderance of minimum responses can be expected to lead to a reduction in the available information to perform scale development. We conducted analyses that handled the skewed/ordinal data distribution by using polychoric correlations; nevertheless, the reduction of effective power due to positive skew should be kept in mind.

A parallel analysis suggested that there were five potential factors, but a more reasonable interpretation was that the data were strongly unidimensional, with a possible secondary factor. Use of the ICLUST algorithm identified a number of poorly performing items and two potential clusters of reliable items. However, we note that the combination of these two clusters reduces the coefficient beta only slightly, which tends to argue for a one-cluster (one-dimensional) solution. Accordingly, we eliminated the non-performing items and ran a polychoric factor analysis by using items from the two tentative clusters. The results of the EFA are shown in Table 6. All items load strongly on a single global Experienced-Stigma factor. The model is an extremely good fit to the data, with an RMSR of 0.01, Tucker-Lewis Index of .922, and multiple R^2 of .98. However, keeping the relative lack of information in the available dataset in mind, these results should be treated with caution. It is interesting to note that each of the items that load on the second oblique factor is related to social judgements or interactions with others. Our conclusion, therefore, is that experienced stigma is primarily measurable as a unidimensional construct. In addition, a briefer version of the self-stigma scale will probably perform almost as well, in terms of reliability, as the larger set of items provided in Table 6. Finally, four items appear to specifically tap a form of "felt social stigma," which is nevertheless highly related to the global self-stigma construct. This raises the further option of selecting a scale that is solely based on "introspective stigma," with no social element, by avoiding the inclusion of these items. It must be emphasised that our conclusions regarding the psychometric properties of the self-stigma scale remain tentative because of the data limitations of the available sample. Future development needs to rely on either a much larger general population study, or be targeted towards heavy or problematic gamblers.

Correlation and regressions using derived scales.   To finalise the evaluation of the derived scales, we considered their relationships with other variables, including demographics, gambling activity, and problem indicators, as well as general attitudes towards gambling. Table 7 summarises the bivariate correlations between the variables for the full sample, excluding experienced stigma. Given that felt stigma towards one's own gambling is relevant only for those who gamble, we also provide Table 8, which computes the correlations only for those participants who reported having gambled in the previous 12 months.

Table 6

Standardised Loadings (Pattern Matrix) of EFA on the GESS Self-Stigma Items

	b_1	b_2	h^2
I feel the need to hide my gambling from my friends.	.91	.23	.92
I sometimes have the thought that I've screwed up my life by gambling.	.91	.24	.93
Most people would always suspect that I had returned to gambling, even if I didn't gamble anymore.	.93	.22	.95
People have insulted me because of my gambling.	.91		.90
I have the thought that I should be ashamed of myself for my gambling.	.97		.93
People can tell that I am a gambler by the way I look.	.86		.75
Others think I am not worth the investment of time and resources because I am a gambler.	.95		.89
I sometimes have the thought that I deserve the bad things that have happened to me in life because I gamble.	.94		.88
I feel the stress in my life is what causes me to gamble.	.93		.86
Others view me as morally weak because I am a gambler.	.96		.91
I avoid situations where another person might have to depend on me.	.96		.91
I don't think I can be trusted because I gamble.	.96		.91
Once they know I'm a gambler, most people will take my opinion less seriously.	.97		.93

Note. $N = 403$. $b < .20$ suppressed. EFA = exploratory factor analysis; GESS = Gambling Experienced Stigma Scale.

Table 9 summarises a multiple regression that predicts the mean Contempt and Ostracism scores by using all available variables. Those who gambled and those who gambled more (CSPG) had less contempt for (problem) gamblers. Although it falls just short of the .05 significance threshold, it is of theoretical importance that PGSI scores were positively related to contempt when we controlled for gambling activity.

Table 7

Bivariate Correlations Between Each of the Aggregated Variables for the Full Sample (Excluding GESS)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Age	1	PS	PS	P	P	P	P	P
2. Gender (F)	-.19***	1	PC	PS	PS	PS	PS	PS
3. Gamble	-.01	-.16***	1	PS	PS	PS	PS	PS
4. Contempt	-.01	.03	-.16***	1	P	P	P	P
5. Ostracism	.05	.11***	-.18***	.46***	1	P	P	P
6. ATGS	-.05	-.02	-.05	-.03	-.02	1	P	P
7. PGSI	-.01	-.12***	.57***	-.02	-.04	-.06*	1	P
8. CSPG	.06*	-.15***	.69***	-.09**	-.10***	-.01	.60***	1

Note. $N = 1,423$. GESS = Gambling Experienced Stigma Scale; F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling; P = Pearson; PS = polyserial; PC = polychoric.
$*p < .05$, $**p < .01$, $***p < .001$.

Table 8

Bivariate Correlations Between Each of the Aggregated Variables for the Full Sample (Including Only Participants Who Gamble)

	1.	2.	3.	4.	5.	6.	7.	8.
1. Age	1	PS	P	P	P	P	P	P
2. Gender (F)	-.22***	1	PS	PS	PS	PS	PS	PS
3. Stigma – own	-.11*	-.08	1	P	P	P	P	P
4. Contempt	-.04	.03	.16***	1	P	P	P	P
5. Ostracism	.02	.13**	.02	.43***	1	P	P	P
6. ATGS	-.08	.04	-.03	-.11	-.03	1	P	P
7. PGSI	-.02	-.15**	.30***	.03	.01	-.10*	1	P
8. CSPG	.13**	-.18***	.07	-.06	-.06	.03	.55***	1

Note. N = 447. F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling; P = Pearson; PS = polyserial; PC = polychoric.

$*p < .05, **p < .01, ***p < .001$.

As found previously, attitudes were more negative towards problem gamblers than they were towards recreational gamblers.

Table 9 also shows a similar regression analysis for the Ostracism subscale. Older people and females tended to score more highly on this measure. Once again, those who did not gamble tended to have lower scores, and attitudes were more positive towards recreational than they were towards problem gamblers. Regression analysis of the Experienced Stigma scale was slightly more complicated because of the severe positive skew in the data. Therefore, average experienced stigma scores were rounded to the nearest Likert response [1-4] and analysed by using ordinal logistic regression. The results are summarised in Table 10. The results show that, among gamblers, PGSI scores were positively related to experienced stigma, whereas CSPG scores were negatively related to experienced stigma. Further, age but not gender was negatively related to experienced stigma. The opposite effects of PGSI and CSPG must be interpreted with reference to the fact that these variables are strongly correlated. The correct interpretation is that those gamblers who report gambling more heavily, without admitting to gambling problems, tend to have fewer experiences of stigma.

General Discussion

The present study, to our knowledge, is the first to undertake the construction and validation of both perceived and experienced stigma scales specific to gambling. The clear delineation between experienced and perceived stigma was evident during analysis. Consequently, the GPSS and the GESS were validated independently. Both scales indicated strong psychometric properties, although further validation with a larger sample of people who gamble heavily or experience problems with gambling is recommended for the GESS. Analysis of the GPSS indicated a strong two-factor model of perceived stigma with dimensions of Contempt and Ostracism, the items

Table 9

Multiple Regression Predicting the Mean GPSS Contempt and Ostracism Subscale Scores Using All Available Variables

	b	SE	t
Contempt			
Age	-.01	.01	-0.43
Gender (F)	.01	.03	0.22
Gamble	-.12	.04	-3.25**
ATGS	-.01	.06	-1.60
PGSI	.22	.12	1.74
CSPG	-.08	.04	-2.09*
Target (RG vs. PG)	.24	.03	-8.34***
Ostracism			
Age	.03	.01	2.62**
Gender (F)	.09	.03	3.18**
Gamble	-.15	.04	-4.20***
ATGS	-.00	.05	-0.05
PGSI	.14	.12	1.14
CSPG	-.06	.04	1.58
Target (RG vs. PG)	.24	.03	-8.61***

Note. N = 1,423. GPSS = Gambling Perceived Stigma Scale; F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling; RG = recreational gambling; PG = problem gambling.
*p < .05, **p < .01, ***p < .001.

mapping onto each dimension having strong face validity. Moderate correlations suggest that the use of these subscales may be more meaningful than a global Perceived Stigma scale. Analysis of the GESS suggested a single unidimensional Experienced Stigma scale and both scales discriminate well between stigma held towards RG and PG targets. The GPSS and GESS are presented as Appendices B and C, respectively.

Table 10

Ordinal Logistic Regression Beta Coefficients Predicting Self-Stigma GESS Scores for Those Who Gambled

	b	SE	t
Age	-.20	.09	-2.18*
Gender (F)	-.15	.23	0.63
ATGS	-.11	.46	-0.23
PGSI	2.75	.52	5.31***
CSPG	-.41	.19	-2.19*

Note. N = 403. GESS = Gambling Experienced Stigma Scale; F = female; ATGS = Attitude Towards Gambling Scale; PGSI = Problem Gambling Severity Index; CSPG = Consumption Screen for Problem Gambling.
*p < .05, ***p < .001.

Although analysis of the factor structure did not support the six-dimension stigma framework adopted from E. E. Jones et al. (1984), the identified dimensions of Contempt and Ostracism align closely with the Jones framework, particularly in the areas of peril and aesthetics. Of importance is that these dimensions are also consistent with the literature that examines stigma by using measures such as desire for social distance (e.g., Angermeyer & Matschinger, 2003). Thus, although a six-dimension model of stigma does not appear to be the most efficient framework within which to assess gambling-related stigma, a theoretical examination derived from this foundation is relevant to the understanding of the origin of gambling-related stigma.

The useful delineation of experienced and perceived stigma offers a means to approach and address the potential impact of stigma in the lives of those experiencing gambling problems. Although stigma is known to be linked with reduced likelihood of accessing treatment, little is known about how stigma in RG and PG differentially affects treatment seeking. The scales reported here provide the methods and tools to address this issue. In addition, the scales provide practitioners, health care workers, treatment providers, and policy makers with tools that may usefully inform awareness and understanding of both experienced and perceived stigma by those who gamble. The generalisability of the perceived and experienced stigma scales will depend on their successful dissemination and use in the community, as well as on the ability of researchers and practitioners to increase awareness of the processes of stigma involved in gambling.

Future Research Issues

Although the psychometric properties of the Experienced Stigma scale suggest a strong unidimensional global scale, it is important to acknowledge that only a limited proportion of the sample self-identified as regular or recent gamblers and thus caution should be used in interpreting the results. Further development of the GESS should seek to include a larger population sample or purposeful sampling of people with high levels of consumption of gambling products or who experience problems with gambling. It is likely that the scale may be further reduced with additional validation.

In addition, the finding of negative attitudes to gambling and self-stigma experienced among those participants who gamble should be investigated further. Although this finding is consistent with previous studies (Donaldson et al., 2015; Orford et al., 2009; Salonen et al., 2014), the paradoxical relationship between observed attitudes towards gambling and engagement in gambling activities remains to be comprehensively explored. This relationship is important in understanding the nature and origin of this stigma, as well as the potential associated harm, and suggests that beyond any self-recrimination due to the over-investment of time or money in gambling, judgements are made about the nature of the activity compared with other recreational pursuits.

Conclusions

These scales offer utility in terms of the measurement of stigma related to gambling and its impact as a potential barrier to treatment for those who experience gambling problems. In addition, the scales allow assessment of the impact of stigma on the conduct of research into gambling, as well as measurement of the effectiveness of efforts to reduce gambling-related stigma. The findings of this study provide a broad and rigorous platform on which to base future scale validation and application.

References

Afifi, T. O., Brownridge, D. A., MacMillan, H., & Sareen, J. (2010). The relationship of gambling to intimate partner violence and child maltreatment in a nationally representative sample. Journal of Psychiatric Research, 44, 331–337. doi:10.1016/j.jpsychires.2009.07.010

Ahern, J., Stuber, J., & Galea, S. (2007). Stigma, discrimination and the health of illicit drug users. *Drug and Alcohol Dependence, 88*, 188–196. doi:10.1016/j.drugalcdep.2006.10.014

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Ames, D. R. (2004). Strategies for social inference: A similarity contingency model of projection and stereotyping in attribute prevalence estimates. *Journal of Personality and Social Psychology*, *87*, 573–585.

Angermeyer, M. C., & Matschinger, H. (2003). The stigma of mental illness: Effects of labelling on public attitudes towards people with mental disorder. *Acta Psychiatrica Scandinavica*, *108*, 304–309.

Anitha, S. (2007). A cultural approach to understanding the stigma of drug use: The experience of prisoners in England and Wales. In J. Fountain & D. J. Korf (Eds.), *Drugs in society: European perspectives* (pp. 76–86). Milton Keynes, United Kingdom: Radcliffe Publishing.

Aviram, R. B. (2006). Stigma and alcohol misuse during adolescence. *International Journal of Adolescent Medicine and Health, 18*, 27–30.

Barney, L. J., Griffiths, K. M., Christensen, H., & Jorm, A. F. (2010). The Self-Stigma of Depression Scale (SSDS): Development and psychometric evaluation of a new instrument. *International Journal of Methods in Psychiatric Research, 19*, 243–254. doi:10.1002/mpr.325

Batterham, P. J., Calear, A. L., & Christensen, H. (2013). The Stigma of Suicide Scale: Psychometric properties and correlates of the stigma of suicide. *Crisis:*

The Journal of Crisis Intervention and Suicide Prevention, 34, 13–21. doi:10.1027/0227-5910/a000156

Björkman, T., Svensson, B., & Lundberg, B. (2007). Experiences of stigma among people with severe mental illness: Reliability, acceptability and construct validity of the Swedish versions of two stigma scales measuring devaluation/discrimination and rejection experiences. *Nordic Journal of Psychiatry, 61*, 332–338. doi:10.1080/08039480701642961

Breakey, W. R., Fischer, P. J., Nestadt, G., & Romanoski, A. (1992). Stigma and stereotype: Homeless mentally ill persons. In P. J. Fink & A. Tasman (Eds.), *Stigma and mental illness* (pp. 97–112). Arlington, VA: American Psychiatric Association.

Brown, C., Conner, K. O., Copeland, V. C., Grote, N., Beach, S., Battista, D., & Reynolds, C. F., 3rd (2010). Depression stigma, race, and treatment seeking behavior and attitudes. *Journal of Community Psychology, 38*, 350–368. doi:10.1002/jcop.20368

Butler, R. C., & Gillis, J. M. (2011). The impact of labels and behaviors on the stigmatization of adults with Asperger's disorder. *Journal of Autism and Developmental Disorders, 41*, 741–749. doi:10.1007/s10803-010-1093-9

Calear, A. L., Griffiths, K. M., & Christensen, H. (2011). Personal and perceived depression stigma in Australian adolescents: Magnitude and predictors. *Journal of Affective Disorders, 129*, 104–108. doi:10.1016/j.jad.2010.08.019

Carroll, A., Rodgers, B., Davidson, T., & Sims, S. (2013). *Stigma and help-seeking for gambling problems.* Canberra, Australia: ACT Gambling and Racing Commission. Retrieved from https://www.austgamingcouncil.org.au/content/stigma-and-help-seeking-gambling-problems-0

Castaldelli-Maia, J. M., Scomparini, L. B., de Andrade, A. G., Bhugra, D., de Toledo Ferraz Alves, T. C., & D'Elia, G. (2011). Perceptions of and attitudes toward antidepressants: Stigma attached to their use—A review. *Journal of Nervous and Mental Disease, 199*, 866–871. doi:10.1097/NMD.0b013e3182388950

Cataldo, J. K., Slaughter, R., Jahan, T. M., Pongquan, V. L., & Hwang, W. J. (2011). Measuring stigma in people with lung cancer: Psychometric testing of the Cataldo Lung Cancer Stigma Scale. *Oncology Nursing Forum, 38*, E46–E54. doi:10.1188/11.onf.e46-e54

Chaudoir, S. R., Norton, W. E., Earnshaw, V. A., Moneyham, L., Mugavero, M. J., & Hiers, K. M. (2012). Coping with HIV stigma: Do proactive coping and spiritual peace buffer the effect of stigma on depression? *AIDS and Behavior, 16*, 2382–2391. doi:10.1007/s10461-011-0039-3

Cooksey, R. W., & Soutar, G. N. (2006). Coefficient beta and hierarchical item clustering: An analytical procedure for establishing and displaying the dimensionality and homogeneity of summated scales. *Organizational Research Methods, 9*, 78–98. doi:10.1177/1094428105283939

Cooper, G. A. (2001). *Online assistance for problem gamblers: An examination of participant characteristics and the role of stigma* (Doctoral dissertation, University of Toronto, Toronto, ON, Canada). Available from ProQuest Dissertations and Theses database. (Accession No. NQ58899)

Corrigan, P. W., Kuwabara, S. A., & O'Shaughnessy, J. (2009). The public stigma of mental illness and drug addiction: Findings from a stratified random sample. *Journal of Social Work, 9*, 139–147. doi:10.1177/1468017308101818

Corrigan, P. W., Lurie, B. D., Goldman, H. H., Slopen, N., Medasani, K., & Phelan, S. (2005). How adolescents perceive the stigma of mental illness and alcohol abuse. *Psychiatric Services, 56*, 544–550. doi:10.1176/appi.ps.56.5.544

Corrigan, P., Markowitz, F. E., Watson, A., Rowan, D., & Kubiak, M. A. (2003). An attribution model of public discrimination towards persons with mental illness. *Journal of Health and Social Behavior, 44*, 162–179. doi:10.2307/1519806

Corrigan, P. W., River, L. P., Lundin, R. K., Penn, D. L., Uphoff-Wasowski, K., Campion, J., & Kubiak, M. A. (2001). Three strategies for changing attributions about severe mental illness. *Schizophrenia Bulletin, 27*, 187–195.

Crawford, N. D., Rudolph, A. E., Jones, K., & Fuller, C. (2012). Differences in self-reported discrimination by primary type of drug used among New York City drug users. *The American Journal of Drug and Alcohol Abuse, 38*, 588–592. doi:10.3109/00952990.2012.673664

Darbyshire, P., Oster, C., & Carrig, H. (2001). The experience of pervasive loss: Children and young people living in a family where parental gambling is a problem. *Journal of Gambling Studies, 17*, 23–45. doi:10.1023/a:1014536315167

Day, E. N., Edgren, K., & Eshleman, A. (2007). Measuring stigma toward mental illness: Development and application of the Mental Illness Stigma scale. *Journal of Applied Social Psychology, 37*, 2191–2219. doi:10.1111/j.1559-1816.2007.00255.x

Derlega, V. J., Winstead, B. A., Gamble, K. A., Kelkar, K., & Khuanghlawn, P. (2010). Inmates with HIV, stigma, and disclosure decision-making. *Journal of Health Psychology, 15*, 258–268. doi:10.1177/1359105309348806

Dhillon, J., Horch, J., & Hodgins, D. (2011). Cultural influences on stigmatization of problem gambling: East Asian and Caucasian Canadians. *Journal of Gambling Studies, 27*, 633–647. doi:10.1007/s10899-010-9233-x

Dickson-Swift, V. A., James, E. L., & Kippen, S. (2005). The experience of living with a problem gambler: Spouses and partners speak out. *Journal of Gambling Issues*, 13. doi:10.4309/jgi.2005.13.6

Donaldson, P., Rockloff, M. J., Browne, M., Sorenson, C., Langham, E., & Li, E. (2015). Attitudes towards gambling and gambling reform in Australia. *Journal of Gambling Studies*. Advance online publication. doi:10.1007/s10899-015-9529-y

Dowling, N., Smith, D., & Thomas, T. (2009). The family functioning of female pathological gamblers. *International Journal of Mental Health and Addiction, 7*, 29–44.

Dunning, D., & Hayes, A. F. (1996). Evidence for egocentric comparison in social judgment. *Journal of Personality and Social Psychology*, *71*, 213.

Feldman, D. B., & Crandall, C. S. (2007). Dimensions of mental illness stigma: What about mental illness causes social rejection? *Journal of Social and Clinical Psychology, 26*, 137–154. doi:10.1521/jscp.2007.26.2.137

Ferland, F., Fournier, P.-M., Ladouceur, R., Brochu, P., Bouchard, M., & Pâquet, L. (2008). Consequences of pathological gambling on the gambler and his spouse. *Journal of Gambling Issues, 22*, 219–229.

Ferris, J., & Wynne, H. (2001). *The Canadian Problem Gambling Index: Final report*. Ottawa, ON: Canadian Centre on Substance Abuse.

Fortney, J., Mukherjee, S., Curran, G., Fortney, S., Han, X., & Booth, B. M. (2004). Factors associated with perceived stigma for alcohol use and treatment among at-risk drinkers. *The Journal of Behavioral Health Services & Research, 31*, 418–429. doi:10.1007/bf02287693

Gainsbury, S., & Blaszczynski, A. 2011. Online self-guided interventions for the treatment of problem gambling. *International Gambling Studies, 11*, 289–308.

Gainsbury, S., Hing, N., & Suhonen, N. (2013). Professional help-seeking for gambling problems: Awareness, barriers and motivators for treatment. *Journal of Gambling Studies, 30*, 503–519. doi:10.1007/s10899-013-9373-x

Gaudia, R. (1987). Effects of compulsive gambling on the family. *Social Work, 32*, 254–256.

Gawley, L., Einarson, A., & Bowen, A. (2011). Stigma and attitudes towards antenatal depression and antidepressant use during pregnancy in healthcare students. *Advances in Health Sciences Education, 16*, 669–679. doi:10.1007/s10459-011-9289-0

Gibbs, D. A., Rae Olmsted, K. L., Brown, J. M., & Clinton-Sherrod, A. M. (2011). Dynamics of stigma for alcohol and mental health treatment among army soldiers. *Military Psychology, 23*, 36–51. doi:10.1080/08995605.2011.534409

Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. Englewood Cliffs, NJ: Prentice-Hall.

Gray, K., Oakley Browne, M., & Radha Prabhu, V. (2007). *Systematic review and meta-analysis of studies on early intervention and prevention for problem gambling*. Retrieved from http://www.gamblingresearch.org.au/resources/d442b904-fef7-4aca-82f6-846c431e9768/contentssummarypages1_3.pdf

Gray, R. (2010). Shame, labeling and stigma: Challenges to counseling clients in alcohol and other drug settings. *Contemporary Drug Problems, 37*, 685–703.

Hardoon, K., Derevensky, J. L., & Gupta, R. (2003). Empirical measures vs. perceived gambling severity among youth: Why adolescent problem gamblers fail to seek treatment. *Addictive Behaviors, 28*, 933–946.

Harris, J., & McElrath, K. (2012). Methadone as social control: Institutionalized stigma and the prospect of recovery. *Qualitative Health Research, 22*, 810–824. doi:10.1177/1049732311432718

Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. *American Journal of Public Health, 103*, 813–821. doi:10.2105/AJPH.2012.301069

Herek, G. M., & Capitanio, J. P. (1999). AIDS stigma and sexual prejudice. *The American Behavioral Scientist, 42*, 1130–1147.

Horch, J. D. (2011). *Problem gambling stigma: Stereotypes, labels, self-stigma, and treatment-seeking* (Doctoral dissertation, University of Calgary, Calgary, AB, Canada). Available from ProQuest Dissertations and Theses database. (Accession No. 915123671)

Horch, J. D., & Hodgins, D. (2008). Public stigma of disordered gambling: Social distance, dangerousness, and familiarity. *Journal of Social and Clinical Psychology, 27*, 505–528. doi:10.1521/jscp.2008.27.5.505

Horch, J. D., & Hodgins, D. (2013). Stereotypes of problem gambling. *Journal of Gambling Issues, 28*, 1–19.

Jones, E. E., Farina, A., Hastorf, A. H., Markus, H., Miller, D. T., & Scott, R. A. (1984). *Social stigma: The psychology of marked relationships*. New York, United States of America: Freeman and Company.

Kalichman, S. C., Simbayi, L. C., Cloete, A., Mthembu, P. P., Mkhonta, R. N., & Ginindza, T. (2009). Measuring AIDS stigmas in people living with HIV/AIDS: The Internalized AIDS-Related Stigma Scale. *AIDS Care, 21*, 87–93. doi:10.1080/09540120802032627

Kanter, J. W., Rusch, L. C., & Brondino, M. J. (2008). Depression self-stigma: A new measure and preliminary findings. *The Journal of Nervous and Mental Disease, 196*, 663–670. doi:10.1097/NMD.0b013e318183f8af

Kassam, A., Glozier, N., Leese, M., Henderson, C., & Thornicroft, G. (2010). Development and responsiveness of a scale to measure clinicians' attitudes to people with mental illness (medical student version). *Acta Psychiatrica Scandinavica, 122*, 153–161. doi:10.1111/j.1600-0447.2010.01562.x

Kassam, A., Papish, A., Modgill, G., & Patten, S. (2012). The development and psychometric properties of a new scale to measure mental illness related stigma by health care providers: The Opening Minds Scale for Health Care Providers (OMS-HC). *BMC Psychiatry, 12*, 62. doi:10.1186/1471-244X-12-62

King, M., Dinos, S., Shaw, J., Watson, R., Stevens, S., Passetti, F.,…Serfaty, M. (2007). The Stigma Scale: Development of a standardised measure of the stigma of mental illness. *The British Journal of Psychiatry, 190*, 248–254. doi:10.1192/bjp.bp.106.024638

Krueger, J., & Clement, R. W. (1997). Estimates of social consensus by majorities and minorities: The case for social projection. *Personality and Social Psychology Review, 1*, 299–313.

Kumar, A., Hessini, L., & Mitchell, E. M. H. (2009). Conceptualising abortion stigma. *Culture, Health & Sexuality, 11*, 625–639. doi:10.1080/13691050902842741

LeBel, T. P. (2012). Invisible stripes? Formerly incarcerated persons' perceptions of stigma. *Deviant Behavior, 33*, 89–107. doi:10.1080/01639625.2010.538365

Lesieur, H. R., & Rothschild, J. (1989). Children of gamblers anonymous members. *Journal of Gambling Behavior, 5*, 269–281.

Lillis, J., Luoma, J. B., Levin, M. E., & Hayes, S. C. (2010). Measuring weight self-stigma: The Weight Self-Stigma Questionnaire. *Obesity, 18*, 971–976. doi:10.1038/oby.2009.353

Link, B. G. (1987). Understanding labeling effects in the area of mental disorders: An assessment of the effects of expectations of rejection. *American Sociological Review, 52*, 96–112. doi:10.2307/2095395

Link, B. G., Mirotznik, J., & Cullen, F. T. (1991). The effectiveness of stigma coping orientations: Can negative consequences of mental illness labeling be avoided? *Journal of Health and Social Behavior, 32*, 302–320. doi:10.2307/2136810

Link, B. G., & Phelan, J. C. (2001). Conceptualizing Stigma. *Annual Review of Sociology, 27*, 363–385.

Luoma, J. B., Nobles, R. H., Drake, C. E., Hayes, S. C., O'Hair, A., Fletcher, L., & Kohlenberg, B. S. (2013). Self-stigma in substance abuse: Development of a new measure. *Journal of Psychopathology and Behavioral Assessment, 35*, 223–234. doi:10.1007/s10862-012-9323-4

Luoma, J. B., O'Hair, A. K., Kohlenberg, B. S., Hayes, S. C., & Fletcher, L. (2010). The development and psychometric properties of a new measure of perceived stigma toward substance users. *Substance Use & Misuse, 45*, 47–57. doi:10.3109/10826080902864712

Luoma, J. B., Twohig, M. P., Waltz, T., Hayes, S. C., Roget, N., Padilla, M., & Fisher, G. (2007). An investigation of stigma in individuals receiving treatment for substance abuse. *Addictive Behaviors, 32*, 1331–1346. doi:10.1016/j.addbeh.2006.09.008

McComb, J. L., Lee, B. K., & Sprenkle, D. H. (2009). Conceptualizing and treating problem gambling as a family issue. *Journal of Marital and Family Therapy, 35*, 415–431.

McMillen, J., Marshall, D., Murphy, L., Lorenzen, S., & Waugh, B. (2004). *Help-seeking by problem gamblers, friends and families: A focus on gender and cultural groups.* Retrieved from Australian National University, Digital Collections Library website: https://digitalcollections.anu.edu.au/handle/1885/45186

Mullen, B., Atkins, J. L., Champion, D. S., Edwards, C., Hardy, D., Story, J. E., & Vanderklok, M. (1985). The false consensus effect: A meta-analysis of 115 hypothesis tests. *Journal of Experimental Social Psychology, 21*, 262–283.

Murray, J. (2007). The cycle of punishment: Social exclusion of prisoners and their children. *Criminology & Criminal Justice: An International Journal, 7*, 55–81. doi:10.1177/1748895807072476

Nickerson, R. S. (1999). How we know—and sometimes misjudge—what others know: Imputing one's own knowledge to others. *Psychological Bulletin, 125*, 737–759.

Norman, R., Windell, D., & Manchanda, R. (2012). Examining differences in the stigma of depression and schizophrenia. *International Journal of Social Psychiatry, 58*, 69–78. doi:10.1177/0020764010387062

Orford, J., Griffiths, M., Wardle, H., Sproston, K., & Erens, B. (2009). Negative public attitudes towards gambling: Findings from the 2007 British Gambling Prevalence Survey using a new attitude scale. *International Gambling Studies*, *9*, 39–54.

Palamar, J. J. (2010). *The role of perceived stigma, stigmatization and religiosity in explaining lifetime use of illicit drugs in emerging adults* (Doctoral dissertation Available from EBSCOhost psych database. (Accession Number 2010-99240-053)

Palamar, J. J., Kiang, M. V., & Halkitis, P. N. (2012). Predictors of stigmatization towards use of various illicit drugs among emerging adults. *Journal of Psychoactive Drugs, 44*, 243–251. doi:10.1080/02791072.2012.703510

Pallesen, S., Mitsem, M., Kvale, G., Johnsen, B.-H., & Molde, H. (2005). Outcome of psychological treatments of pathological gambling: A review and meta-analysis. *Addiction, 100*, 1412–1422. doi:10.1111/j.1360-0443.2005.01204.x

Peluso, É. d. T. P., & Blay, S. L. (2008). Public perception of alcohol dependence. *Revista Brasileira de Psiquiatria, 30*, 19–24. doi:10.1590/s1516-44462008000100004

Phelan, J., Link, B. G., Moore, R. E., & Stueve, A. (1997). The stigma of homelessness: The impact of the label "homeless" on attitudes toward poor persons. *Social Psychology Quarterly, 60*, 323–337.

Poon, C., Saewyc, E., & Chen, W. (2011). Enacted stigma, problem substance use, and protective factors among Asian sexual minority youth in British Columbia. *Canadian Journal of Community Mental Health, 30*, 47–64.

Productivity Commission. (2010). *Gambling* (Report No. 50). Canberra, Australia: Author.

Pulford, J., Bellringer, M., Abbott, M., Clarke, D., Hodgins, D., & Williams, J. (2009). Barriers to help-seeking for a gambling problem: The experiences of gamblers who have sought specialist assistance and the perceptions of those who have not. *Journal of Gambling Studies, 25*, 33–48. doi:10.1007/s10899-008-9113-9

R Core Team. (2013). *R: A language and environment for statistical computing*. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from http://www.R-project.org/.

Raley, K. N. (2012). *Are all substance users created equal? Factors that influence stigma toward individuals with substance use disorders* (Doctoral Dissertation. Available from EBSCOhost psych database. (Accession Number 2012-99140-361)

Revelle, W. (2015). *An introduction to psychometric theory with applications in R*. Manuscript in preparation. Retrieved from http://personality-project.org/r/book/

Revelle, W., & Rocklin, T. (1979). Very simple structure: An alternative procedure for estimating the optimal number of interpretable factors. *Multivariate Behavioral Research, 14*, 403–414. Retrieved from http://personality-project.org/revelle/publications/vss.pdf

Reynolds, G. S., Lehman, W. E. K., & Bennett, J. B. (2008). Psychosocial correlates of the perceived stigma of problem drinking in the workplace. *The Journal of Primary Prevention, 29*, 341–356. doi:10.1007/s10935-008-0140-1

Ritsher, J. B., Otilingam, P. G., & Grajales, M. (2003). Internalized stigma of mental illness: Psychometric properties of a new measure. *Psychiatry Research, 121*, 31–49.

Rockloff, M., & Schofield, G. (2004). Factor analysis of barriers to treatment for problem gambling. *Journal of Gambling Studies, 20*, 121–126.

Rockloff, M. J. (2012). Validation of the consumption screen for problem gambling (CSPG).

Room, R. (2005). Stigma, social inequality and alcohol and drug use. *Drug and Alcohol Review, 24*, 143–155. doi:10.1080/09595230500102434

Ross, L., Greene, D., & House, P. (1977). The "false consensus effect": An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology*, *13*, 279–301.

Ross, M. W., & Rosser, B. R. (1996). Measurement and correlates of internalized homophobia: A factor analytic study. *Journal of Clinical Psychology*, 52, 15–21. doi:10.1002/(SICI)1097-4679(199601)52:1<15::AID-JCLP2>3.0.CO;2-V

Rutledge, S. E., Whyte, J., Abell, N., Brown, K. M., & Cesnales, N. I. (2011). Measuring stigma among health care and social service providers: The HIV/AIDS Provider Stigma Inventory. *AIDS Patient Care and STDs, 25*, 673–682. doi:10.1089/apc.2011.0008

Salonen, A. H., Castren, S., Raisamo, S., Orford, J., Alho, H., & Lahti, T. (2014). Attitudes towards gambling in Finland: A cross-sectional population study. *BMC Public Health*, *14*, 982. doi:10.1186/1471-2458-14-982

Schomerus, G., Lucht, M., Holzinger, A., Matschinger, H., Carta, M. G., & Angermeyer, M. C. (2011). The stigma of alcohol dependence compared with other mental disorders: A review of population studies. *Alcohol and Alcoholism, 46*, 105–112. doi:10.1093/alcalc/agq089

Scull, S., & Woolcock, G. (2005). Problem gambling in non-English speaking background communities in Queensland, Australia: A qualitative exploration. *International Gambling Studies, 5*, 29–44. doi:10.1080/14459790500097939

Sibitz, I., Unger, A., Woppmann, A., Zidek, T., & Amering, M. (2011). Stigma resistance in patients with schizophrenia. *Schizophrenia Bulletin, 37*(2), 316–323. doi:10.1093/schbul/sbp048

Smith, S. M., Dawson, D. A., Goldstein, R. B., & Grant, B. F. (2010). Examining perceived alcoholism stigma effect on racial-ethnic disparities in treatment and quality of life among alcoholics. *Journal of Studies on Alcohol and Drugs, 71*, 231–236.

Soberay, A., Faragher, J. M., Barbash, M., Brookover, A., & Grimsley, P. (2013). Pathological gambling, co-occurring disorders, clinical presentation, and treatment outcomes at a university-based counseling clinic. *Journal of Gambling Studies, 30*, 61–69. doi:10.1007/s10899-012-9357-2

Stangl, A. L., Lloyd, J. K., Brady, L. M., Holland, C. E., & Baral, S. (2013). A systematic review of interventions to reduce HIV-related stigma and discrimination from 2002 to 2013: How far have we come? *Journal of the International AIDS Society, 16*(3 Suppl 2), 18734. doi:10.7448/IAS.16.3.18734

Stuber, J., Galea, S., & Link, B. G. (2008). Smoking and the emergence of a stigmatized social status. *Social Science & Medicine, 67*, 420–430. doi:10.1016/j.socscimed.2008.03.010

Suurvali, H., Cordingley, J., Hodgins, D. C., & Cunningham, J. (2009). Barriers to seeking help for gambling problems: A review of the empirical literature. *Journal of Gambling Studies, 25*, 407–424. doi:10.1007/s10899-009-9129-9

Suurvali, H., Hodgins, D., Toneatto, T., & Cunningham, J. (2008). Treatment seeking among Ontario problem gamblers: Results of a population survey. *Psychiatric Services, 59*, 1343–1346. doi:10.1176/appi.ps.59.11.1343

Suurvali, H., Hodgins, D. C., Toneatto, T., & Cunningham, J. A. (2012). Hesitation to seek gambling-related treatment among Ontario problem gamblers. *Journal of Addiction Medicine, 6*, 39–49. doi:10.1097/ADM.0b013e3182307dbb

Toneatto, T., & Ladoceur, R. (2003). Treatment of pathological gambling: A critical review of the literature. *Psychology of Addictive Behaviors, 17*, 284–292. doi:10.1037/0893-164x.17.4.284

Velicer, W. (1976). Determining the number of components from the matrix of partial correlations. *Psychometrika, 41*, 321–327.

Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology, 53*, 325–337. doi:10.1037/0022-0167.53.3.325

Weiner, B., Perry, R. P., & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology, 55*, 738–748.

Whiteford, H., Buckingham, W., Harris, M., Burgess, P., Pirkis, J., Barendregt, J., & Hall, W. (2014). Estimating treatment rates for mental disorders in Australia. *Australian Health Review, 38*, 80–85. doi:10.1071/AH13142

Wurtzburg, S. J., & Tan, R. H. K. (2011). Sociology of gambling: Gambling parents' impact on their children in Christchurch. *New Zealand Sociology, 26*, 36–57.

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Appendix A
Stigma Measurement Scales Identified From the Literature Review

Scale name	Condition(s) measured by scale	Measures of perceived stigma	Measures of internalized stigma	Other items measured	Psychometric properties reported	Studies reporting measure
Discrimination, alienation, perceived devaluation, and coping – scale not named	Illicit drug use	3 items	3 items	Discrimination, coping behaviour	Yes, in same article	Ahern et al. (2007)
The Self-Stigma of Depression Scale (SSDS)	Depression	-	16 items	-	Yes, in same article	Barney et al. (2010)
Perceived Devaluation and Discrimination (PDD)	Mental illness, depression, gambling, substance abuse, alcohol abuse, smoking	12 items	-	-	Yes, in other articles	Björkman et al. (2007); Brown et al. (2010); Horch (2011); Link (1987); Link, Mirotznik, and Cullen (1991); Luoma, O'Hair, Kohlenberg, Hayes, and Fletcher (2010); Palamar et al. (2012); Reynolds, Lehman, and Bennett (2008); Stuber, Galea, and Link (2008)
Social Distance Scale (SDS)	Asperger's disorder, mental illness, gambling	-	-	Desired social distance	Yes, in other articles	Butler and Gillis (2011); Feldman and Crandall (2007); Horch (2011); Norman et al. (2012)
Day's Mental Illness Stigma Scale	Mental illness	27 items	-	1 item: professional efficacy	Yes, in same article	Day, Edgren, and Eshleman (2007)
Stigma and attitudes towards antenatal depression in health care – scale not named	Antenatal depression	-	-	Fear, stigma, nervousness, willingness to care for, social distance	Yes, in same article	Gawley, Einarson, and Bowen (2011)

Appendix A. Continued.

Scale name	Condition(s) measured by scale	Measures of perceived stigma	Measures of internalized stigma	Other items measured	Psychometric properties reported	Studies reporting measure
Attribution Questionnaire (AQ)	Gambling	-	-	Behavioural attributions towards stigmatised conditions	Yes, in other article	Horch (2011)
Self-Stigma of Mental Illness Scale (SSMIS)	Gambling	-	30 items	-	Yes, in other article	Horch (2011)
Stigma-related Interpersonal Rejection (SRIR)	Gambling	-	-	9 items: discrimination	Yes, in other article	Horch (2011)
Depression Self-Stigma Scale (DSSS)	Depression	4 items	18 items	6 items: discrimination, 4 items: treatment stigma	Yes, in same article	Kanter et al. (2008)
Mental Illness Clinicians Attitudes (MICA) Scale	Mental illness	-	-	Clinicians' attitudes towards mental illness	Yes, in same article	Kassam, Glozier, Leese, Henderson, and Thornicroft (2010)
Opening Minds Scale for Health Care Providers (OMS-HC)	Mental illness	-	-	Clinicians' attitudes towards mental illness	Yes, in same article	Kassam, Papish, Modgill, and Patten (2012)
The Stigma Scale (SS)	Mental illness	-	11 items	12 items: discrimination	Yes, in same article	King et al. (2007)
Coping Orientations: Secrecy, Avoidance- withdrawal and Education – scale not named	Mental illness	4 items: secrecy	1 item: secrecy, 7 items: withdrawal	5 items: education of others	Yes, in same article: coping efforts increased stigma	Link et al. (1991)

Appendix A. Continued.

Scale name	Condition(s) measured by scale	Measures of perceived stigma	Measures of internalized stigma	Other items measured	Psychometric properties reported	Studies reporting measure
Substance Abuse Self-Stigma Scale (SASSS)	Substance abuse	-	8 items: self-devaluation, 9 items: discrimination, 13 items: avoidance, 10 items: values disengagement	-	Yes, in same article	Luoma et al. (2013)
Internalised Stigma of Mental Illness (ISMI)	Mental illness	-	19 items	5 items: discrimination, 5 items: stigma resistance	Yes, in same and other articles	Brown et al. (2010); Ritsher, Otilingam, and Grajales (2003); Sibitz, Unger, Woppmann, Zidek, and Amering, (2011)
Self-Stigma of Seeking Help (SSOSH) scale	Mental illness	-	10 items: treatment-seeking stigma	-	Yes, in same article	Vogel, Wade, and Haake (2006)

Appendix B

Gambling Perceived Stigma Scale (GPSS)

We are interested in your thoughts about people who gamble. For each of the following statements, please consider how you think people who gamble are generally perceived by others.

Important: When you think about gambling DO NOT include lottery tickets, instant scratch tickets or raffles, but DO include all other types of gambling such as poker machines, card games, racing, sports betting, day trading, bingo and casino games.

[For each item, substitute Recreational / Problem gambling target as required]

Strongly Disagree (1) Somewhat Disagree (2) Somewhat Agree (3) Strongly Disagree (4)

Contempt Subscale

1. Most people think [gamblers / problem gamblers] are liars
2. Once they know a person is a [gambler / problem gambler], most people will take his or her opinion less seriously
3. Most people think that [gamblers / problem gamblers] tend to be unreliable
4. Most people think that [gamblers / problem gamblers] are unable to handle responsibility
5. Most people think that [gamblers / problem gamblers] are lazy
6. Most people think that [gamblers / problem gamblers] are greedy
7. Most people believe that [people who gamble / problem gamblers] have no self-control

Ostracism Subscale

8. Many people would be uncomfortable communicating with a [gambler / problem gambler]
9. Most people think less of a [person who gambles / problem gambler]
10. Most people would not hire a [gambler / problem gambler] to take care of their children
11. Most people would be suspicious of a person if they knew they were a [gambler / problem gambler]
12. Most people would not want to enter into a committed relationship with someone they knew [gambled / had a gambling problem]
13. Many people would avoid a person who [gambles / had a gambling problem]

Appendix C

Gambling Experienced Stigma Scale (GESS)

We are interested in your thoughts about your own gambling experiences. Please indicate how much you agree with each of the following statements.

Important: When you think about gambling DO NOT include lottery tickets, instant scratch tickets or raffles, but DO include all other types of gambling such as poker machines, card games, racing, sports betting, day trading, bingo and casino games.

Strongly Disagree (1) Somewhat Disagree (2) Somewhat Agree (3) Strongly Disagree (4)

1. I feel the need to hide my gambling from my friends
2. I sometimes have the thought that I've screwed up my life by gambling
3. Most people would always suspect that I'd returned to gambling, even if I didn't gamble anymore
4. People have insulted me because of my gambling
5. I have the thought that I should be ashamed of myself for my gambling
6. People can tell that I am a gambler by the way I look
7. Others think I am not worth the investment of time and resources because I am a gambler
8. I sometimes have the thought that I deserve the bad things that have happened to me in life because I gamble
9. I feel the stress in my life is what causes me to gamble
10. Others view me as morally weak because I am a gambler
11. I avoid situations where another person might have to depend on me
12. I don't think I can be trusted because I gamble
13. Once they know I'm a gambler, most people will take my opinion less seriously