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REVIEW ARTICLE



Stigma in substance-based and behavioural addictions: A systematic review

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ABSTRACT

Background and Aims: The study of stigma contributes greatly to our understanding of individuals' experiences of mental disorders. Addictive disorders are often associated with public misconceptions of the disorder, which can contribute to shame, discrimination, and reticence to seek help. This review aimed to: (1) evaluate the nature, frequency, and prevalence of addiction stigma; (2) identify the correlates of addiction stigma; and (3) examine the psychometric qualities of addiction stigma measures. **Methods:** A search of Web of Science, PubMed, Scopus, PsycINFO, and PsycNet, had 5,515 results which were screened for eligibility using *Covidence*. Eligible papers were quantitative, peer-reviewed studies, which reported an outcome variable of stigma related to an addiction. **Results:** A total of 99 studies were included in the review, including 70 studies of substance-based addictions, 19 studies of behavioral addictions, and 10 studies which examined both. Thirteen of the 20 studies examining the impact of familiarity with addiction reported that greater familiarity was associated with lower public stigma. Studies comparing substance and behavioral addictions ($n = 5$) typically reported greater public stigma towards vignettes depicting substance-based addictions than for behavioral addictions. Between 22% and 40% of individuals with an addictive disorder identified stigma as a significant barrier to seeking help; however, the relative importance of stigma among other barriers was unclear. **Discussion and Conclusions:** Evidence for countermeasures to prevent and/or reduce stigma is currently limited. Further research on the nature and prevalence of addiction stigma is needed to inform the development of effective clinical and public health countermeasures.

KEYWORDS

stigma, addiction, systematic review, measurement, prejudice, frequency, gambling, gaming

INTRODUCTION

Stigma is a frequently reported and negative experience for people with a mental illness (Angermeyer & Matschinger, 2003; Corrigan, 2007; Feldman & Crandall, 2007; Norman, Sorrentino, Windell, & Manchanda, 2008; Teachman, Wilson, & Komarovskaya, 2006). Stigma is characterized by devaluation, status loss, and discrimination (Goffman, 1997; Yang et al., 2007), which can lead to psychological distress, low self-esteem or self-efficacy, secrecy about treatment seeking, isolation, poor life satisfaction, or increase vulnerability to comorbid health conditions (Bos, Pryor, Reeder, & Stutterheim, 2013; Link, Cullen, Struening, Shrout, & Dohrenwend, 1989; Markowitz, 1998; Weiss, Ramakrishna, & Somma, 2006). Alcohol use disorder (AUD) and other substance-based addictions, reportedly generate more stigma than

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many non-substance-related mental illnesses and are therefore of particular interest in stigma research (Kilian et al., 2021). As behavioral addictions have gained increasing recognition (American Psychiatric Association, 2013; Der-evensky, Hayman, & Gilbeau, 2019; Petry, Zajac, & Ginley, 2018; World Health Organization, 2018), a question arises as to whether everyday activities, particularly those involving digital media such as social media and gaming (Galanis et al., 2021, 2023), may increasingly attract stigmatized perceptions (Aarseth et al., 2017; Dullur & Starcevic, 2018; Gearhardt & Hebebrand, 2021; Rasmussen, 2014; Ruddock, Orwin, Boyland, Evans, & Hardman, 2019; Van Rooij et al., 2018).

The main types of stigma for people with mental illness, which can be used to understand the experiences of people with an addiction, include: 1) *Public stigma* referring to negative social and psychological responses towards people with mental illness, and 2) *Self-stigma* referring to negative perceptions and attitudes held by people with a mental illness towards themselves (Bos et al., 2013; Overton & Medina, 2008). Stigma research often refers to *perceived* stigma, whereby people report what they perceive others think about a stigmatized group. Henceforth, the term ‘perceived’ is used in relation to both self-stigma and public stigma, and the term *person-specific* stigma is used to refer to measures that ask participants to respond to a specific person (e.g., a vignette). Socio-cognitive models of stigma are commonly adopted and propose greater stigma should be expected when a person’s addiction diagnosis is known than when it is not known, as the diagnostic label leads to stereotypes and prejudice when negative stereotypes are endorsed (Corrigan, 2007).

Several reviews have examined mental illness and substance use stigma. Bielenberg, Swisher, Lembke, and Haug (2021) examined 15 intervention studies for bias, stigma, and discrimination among treatment providers of substance use disorders. Studies using experiments, quasi-experiments, or pre-post designs reported that education and contact interventions improved attitudes and perceived role adequacy among healthcare workers towards people with substance use disorders. These findings are consistent with the contact hypothesis which states that positive contact with members of stigmatized groups reduces stigma perceptions when those experiences are generalized towards the rest of the out-group (Couture & Penn, 2003; Desforjes et al., 1991; Islam & Hewstone, 1993). However, Bielenberg et al.’s review reports few studies that used contact independently of other interventions such as education.

Kilian et al. (2021) reviewed 24 studies comparing public attitudes towards AUD with other mental illnesses. Kilian et al. (2021) reported that AUD was stigmatized more than other mental illnesses such as depression, dementia, and obsessive-compulsive disorder. However, AUD did not often differ to other substance use disorders in terms of the severity of stigmatizing responses and was similar to schizophrenia with respect to the discriminatory responses elicited (Kilian et al., 2021). Kilian et al. suggests that these differences could be due to AUD being perceived as more dangerous and more

blameworthy than other mental illnesses. O’Connor, Brassil, O’Sullivan, Seery, and Nearchou (2022) reviewed 22 studies using vignette-based experiments relating to all mental illness, including two studies about substance addictions. O’Connor et al. (2022) aimed to address concerns around the categorical nature of diagnostic classification systems as they relate to labeling and stigma effects. They reported no difference in attitudes or social distance of labeled and unlabeled symptoms for substance use disorders (O’Connor et al., 2022). The effects of labeling were not universal across different mental health conditions, indicating that associations with the label may be unique to each condition and that other factors may mediate the relationship between mental illness labels and stigma (O’Connor et al., 2022).

A review by Meyers et al. (2021) reported a lack of consensus across quantitative studies on the impact of gender on the public stigma of drug use, but largely no differences in self-stigma. However, qualitative research identified issues relating to drug use stigma that specifically affect women, such as: holding women to higher moral standards; stereotypes about the association between drug use and promiscuity; gender-based violence associated with drug use; and systemic discrimination (Meyers et al., 2021). Meyers et al. (2021) highlighted that the additional stigma experienced by women who use drugs is also evident by significant challenges in recruiting this population in drug use research. Taken together, these reviews provide some insights into different facets of addictions, however, no review has critically evaluated studies spanning substance-based and behavioral addictions.

The present study

The present review aims to summarize the empirical literature on predictors and measurement of addiction stigma from the last 20 years. Stigmatizing attitudes have been reported to change over time (Earnshaw et al., 2022), therefore, limiting studies by date sought to minimize the inclusion of studies which are no longer culturally relevant. To our knowledge, no recent reviews have assessed the literature on predictors of stigma associated with addictions with the inclusion of behavioral addictions. Recent reviews on stigma suggest that labeling does not have a consistent effect on stigma across diagnoses (O’Connor et al., 2022) and that education and contact with people with substance use problems improves health provider’s attitudes towards them (Bielenberg et al., 2021). Reviews also report that AUD tended to be more stigmatized than other mental illnesses although comparable to other substance use disorders (Kilian et al., 2021) with little evidence that stigma varies by gender (Meyers et al., 2021). Previous reviews have either been specific to disorders related to alcohol or other drug use (Bielenberg et al., 2021; Kilian et al., 2021; Meyers et al., 2021), or limited to a particular study type, such as vignette studies (O’Connor et al., 2022). This review aims to examine the frequency of stigma, predictors, correlates, and assess available measures of addiction stigma. The review was guided by the following research questions: (1) What is the nature and frequency of addiction-related stigma? (2) What



are the main predictors and correlates of addiction-related stigma, and do these differ according to type of addiction (i.e., substance-based vs. behavioral)? (3) How is stigma measured and what are the psychometric qualities and conventions of available measures?

METHOD

Study identification and assessment

Eligibility criteria. This review aimed to include all studies published between January 2002 and August 2024 that involved empirical investigations of addiction-related stigma. Eligible studies were quantitative, peer-reviewed studies, that reported an outcome variable measuring stigma related to an addiction, including addictions not formalized in diagnostic manuals. Addictions without formal diagnostic categories were included to consider disorders that may be accepted later or for which concerns are raised about stigma. Studies were excluded if they (1) did not report stigma related to an addiction, (2) were not published in a peer-reviewed journal (e.g., dissertations), (3) used qualitative analysis only, or (4) were only published in a non-English language.

Search strategy. The search strategy was based on O'Connor et al.'s (2022) protocol and adapted to be specific for addiction studies. The following key words and search logic were used: (diagnos* OR label* OR “explanatory model*” OR criteri* OR formul* OR distress* OR impair*) AND (addict* OR gambl* OR gamer* OR gaming OR “video gam*”) AND (abuse* OR disord* OR problem* OR misuse* OR addict*) AND (survey* OR questionnaire* OR experiment*) AND (“social distance” OR attitude* OR stigma* OR prejudice OR discriminat* OR stereotyp* OR perception* OR impression* OR “social respon*”). This search was performed in August 2024 in five databases: Web of Science, PubMed, Scopus, PsycInfo, and PsycNet. A copy of all search results is available on request.

Figure 1 summarizes the flow of papers through screening (Page et al., 2021). Potentially eligible studies were stored and organized using *Covidence*. One reviewer (CG) conducted a title and abstract review of all papers and potentially eligible texts were retrieved. All full texts were reviewed by one researcher (CG) and a random sample of 50 papers were reviewed by a second reviewer (TH). Initial independent screening of text indicated an 86% ($n = 43$; Cohen's Kappa = 0.71) agreement regarding whether to include or exclude a report. All disagreements were resolved in discussion and only two studies differed from the first reviewer's (CG) original allocation. This indicates that the first reviewer had a 96% accuracy rate.

Data extraction. One reviewer (CG) searched each full text and recorded study information, including: sample type and size, country, stigma (i.e., public, self, perceived) and addiction type (i.e., substance or behavioral addictions, or

both); stigma measures; other measures; analysis plan and main stigma findings in relation to stigma. A 10-item quality assessment was conducted based on the methods and results section of the Journal Article Reporting Standards (JARS; Appelbaum et al., 2018). A score of 0, 0.5, or 1, was given for each item of the quality assessment to make a total score out of 10, where 10 indicates comprehensive reporting and 0 indicates minimal reporting. A second reviewer (ML) extracted data for 20 studies to determine inter-rater reliability. No major discrepancies were noted between reviewers for data extraction. The quality of reporting assessment showed an average difference of 1.24 and a recommended adjustment to scores of -0.74 .

Stigma measurement tools: selection and assessment

Eligibility criteria. Stigma measures were eligible for review if used by one or more studies in the first phase of the review; had been cited in other peer-reviewed journal articles (i.e., more frequently used or referred to measures); were not composite measures; and the measure was theory-based or psychometrically evaluated.

Selection of measures. Measure selection involved generating a list of every measure of stigma used in each study ($n = 99$). A total of 21 measures were eligible and included for data extraction.

Data extraction. Data extraction involved reviewing papers which used the measure or parts of the measure and recording relevant information: (1) number of items; (2) scoring information; (3) health conditions evaluated in relation to stigma; and (4) the measure's reference point for stigma: (a) self-referential; (b) another specific person (e.g., a vignette); (c) the illness, (d) or their view of how others' perceive them or an illness; (5) number of citations; (6) number of studies in the review that used the measure; and (7) evidence of convergent (i.e., correlation with other stigma measures) and discriminant validity (i.e., scoring for addiction versus control groups).

Components of stigma addressed by stigma measures

Development of a conceptual framework. Models of stigma used in the studies were reviewed to develop a framework that summarizes the important conceptual underpinnings of addiction stigma studies. Forty-five studies (45.5%) cited papers referring to Attribution Theory or other Social-Cognitive models of stigma (Corrigan et al., 1999, 2000, 2002, 2003, 2009; Corrigan, 2000; Link & Phelan, 2001, 2004; Weiner, 1985, 1988, 1995; Weiner, Perry, & Magnusson, 1988).

Review of theories. Figure 2 summarizes the main components of stigma theories identified and then synthesized in this review. Eleven categories were generated based on Attribution Theory and the Danger Appraisal Hypothesis (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003) and were guided by additional papers on the broader



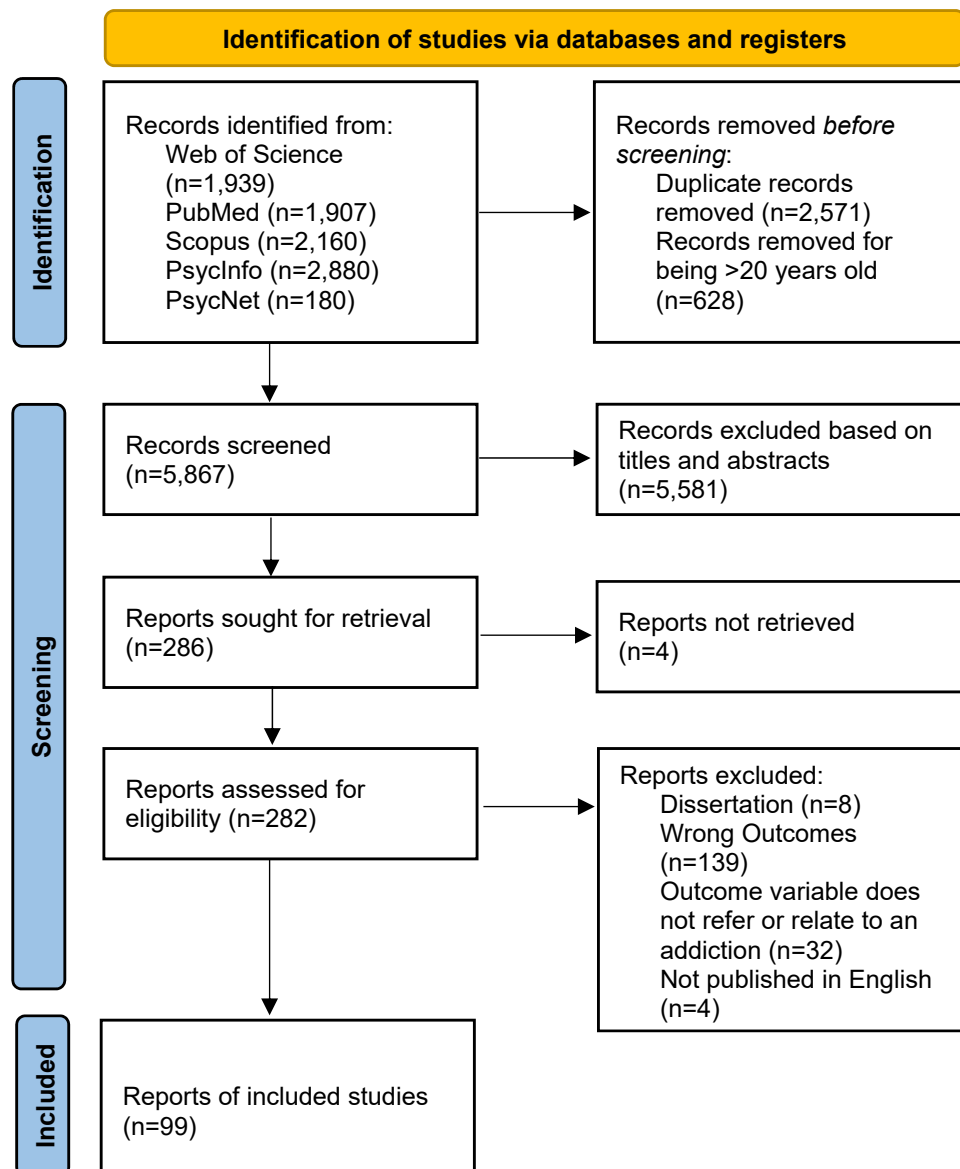


Fig. 1. Search results and study selection according to PRISMA guidelines

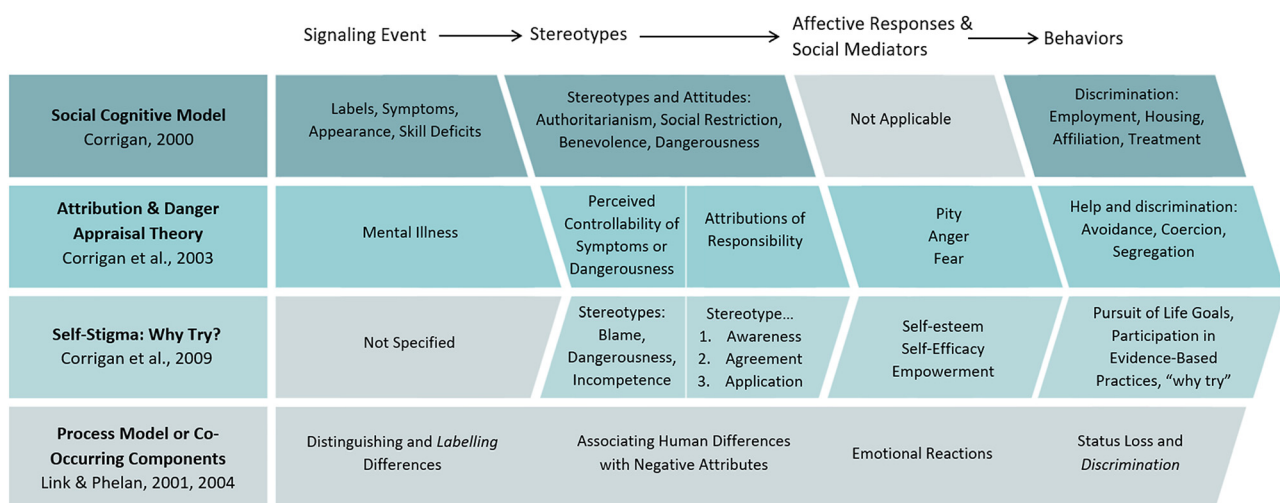


Fig. 2. Common components and processes of four theories of stigma

Social–Cognitive models of stigma (Corrigan, 2000; Corrigan et al., 2001, 2009; Link & Phelan, 2001, 2004). Four main components appear across these theories which typically follow a linear process of stigma: *Signaling*, *Stereotypes*, *Affective Responses*, *Behavior (Discrimination or Helping/Empowerment)* (Corrigan, 2000; Corrigan et al., 2001, 2003, 2009; Link & Phelan, 2001, 2004).

Signaling refers to a feature of someone's behavior, appearance, or a diagnosis or label that indicates they have a mental illness (Corrigan, 2000). Although attribution theory and the 'why try' model of self-stigma require awareness of a person's mental illness, the signaling event is not emphasized (Corrigan et al., 2003, 2009). Therefore, only the broad category of 'signaling event' was used rather than referring to specific subcategories used by Corrigan (2000). The second component, *Stereotypes*, involves awareness of negative cultural perceptions of people with mental illness and endorsement of those beliefs, as well as application of stereotypes to oneself in self-stigma (Corrigan, 2000; Corrigan, Larson, & Ruesch, 2009). Stereotyping acts as a mediator between signaling events and affective or behavioral reactions in which endorsement of negative stereotypes engenders more negative emotional and behavioral responses (Corrigan, 2000).

Two subcategories of stereotypes were identified from attribution theory and the danger appraisal hypothesis; *Responsibility* for the illness and *Perceived Dangerousness* to others due to the condition (Corrigan et al., 2003). *Perceived Controllability* was not included as it is conceptually related to *Responsibility* in many measures, despite being distinct ideas (Corrigan et al., 2003). Corrigan (2000) also proposes stereotypes such as *authoritarianism*, referring to support for coercive intervention strategies; *social restriction*, believing in segregating mentally ill people; and *benevolence*, relating to parental-like kindness towards a child, which are summarized by the emotional and behavioral responses highlighted in Attribution Theory. *Affective Responses* are emotions linking stereotyping and behavioral responses in Attribution Theory and the Danger Appraisal Hypothesis with three subcategories: *Pity*, *Anger*, and *Fear* (Corrigan et al., 2003). The final two components refer to behavioral responses in the form of *Discrimination* such as *Avoidance* or supporting *Segregation* or *Coercion* policies for people with mental illness, or *Helping* and *Empowering* behaviors referring to positive treatment (Corrigan et al., 2003).

Data extraction. Data extraction involved one reviewer (CG) comparing each of the 21 measures to the conceptual framework of stigma detailed above to assess if each component of stigma was evaluated by the measure.

RESULTS

Characteristics of studies

A comprehensive tabular summary of the 99 included studies can be found in [Supplementary Table 1](#). The table is provided in a [supplementary file](#) due to its size and scope

exceeding print limits. Studies had an average score of 7.6 out of 10 on the quality assessment, indicating moderately high standards of reporting. Public stigma was examined in more than two thirds of studies ($n = 64$, 64.6%), and self-stigma was assessed in 23 studies (23.2%). Twenty (20.2%) studies examined perceived stigma, regarding their beliefs about the stigma-related attitudes of people other than themselves. Nearly half (40.0%) of the studies that examined perceived stigma also assessed self or public stigma.

A total of 70 studies (70.7%) focused on substance use addictions, 19 studies (19.2%) examined behavioral addictions, and 10 studies (10.1%) examined both substance and behavioral addictions. Nineteen of the 29 studies on behavioral addiction stigma were published since 2017, and the oldest in 2008. Studies were survey-based ($n = 51$, 51.5%), experimental ($n = 47$, 47.5%), or both ($n = 1$, 1.0%). Experiments tended to employ vignettes or manipulations of diagnosis and/or symptom labeling ($n = 41$, 87.2%), with one study using video-based vignettes (Morgiève, N'diaye, Nguyen-Khac, Mallet, & Briffault, 2019). Only six experiments (12.8%) evaluated an intervention for reducing stigma. One study evaluated alcohol treatment on self-stigma (Ertl, Groß, Mwaka, & Neuner, 2021), whereas other interventions examined public stigma relating to gambling disorder (Brown & Russell, 2019), drug and alcohol addiction (Crapanzano, Vath, & Fisher, 2014; Yashikhina, Gradinar, & Abashkina, 2023), pregnant smokers (David et al., 2024), or substance use problems (Cleary, Hunt, Malins, Matheson, & Escott, 2009).

Most studies were conducted in the USA ($n = 39$, 39.4%), followed by Australia ($n = 13$, 13.1%), Canada ($n = 8$, 8.1%), France ($n = 6$, 6.1%), and Great Britain ($n = 5$, 5.1%). A total of 94,314 respondents participated across all studies, with an average sample of $N = 953$. Survey and experimental studies both tended to have large samples; survey-based studies had an average of 838 participants; experimental studies had an average sample of 1,083 participants. Gender of participants showed a slight overrepresentation of people identifying as female (55.1%; $n = 51,000$) compared to participants identifying as male, and only a small proportion of participants across studies reported their gender as other or prefer not to say (0.2%; $n = 230$).

Nature and frequency of stigma

The frequency of stigma was seldom reported and had considerable variance across the 14 (14.1%) studies that included estimates. Two types of frequency estimation were evident. Studies either used a single question asking whether stigma was a barrier to treatment seeking or used a measure involving criteria or threshold scores (in continuous measures) to classify the presence or absence of stigma.

Six (6.1%) studies reported on stigma as a barrier to treatment seeking from surveying people with a substance addiction about their engagement with treatment (Balan, Kannekanti, & Khanra, 2023; Jackson & Shannon, 2012; Jullian et al., 2023; Probst, Manthey, Martinez, & Rehm, 2015; Salameh, Hall, Crawford, Staten, & Hall, 2021; Wu, Blazer, Li, & Woody, 2011). The highest proportion of participants who



reported stigma as a barrier to treatment seeking was 40.0% in a sample of people who had delayed seeking treatment for substance use problems (Balan et al., 2023), followed by 28.6% of people with AUD (Probst et al., 2015), 22.0% of adolescents with opioid use disorder (OUD) (Wu et al., 2011), and the lowest was 12.0% of responses to a question about the main barriers to treatment seeking for physicians with substance use disorders (Jullian et al., 2023). In samples of pregnant women with substance addiction, stigma as a barrier to treatment seeking varied from 15.3% (Jackson & Shannon, 2012) to 38.1% (Salameh et al., 2021) of participants. Additionally, Miquel et al. (2018) reported that 16.5% of general practitioners did not screen for AUD for stigma-related reasons.

Five studies evaluated the proportions of participants who have public stigma towards people with an addiction (Deng et al., 2020; Hing, Russell, & Gainsbury, 2016; Hing, Russell, Gainsbury, et al., 2016; Morgiève et al., 2019; Peretti-Watel, 2003). These studies included adult participants recruited using convenience sampling (Morgiève et al., 2019), random sampling of rural and urban communities in China (Deng et al., 2020), quota sampling to represent residents in Victoria, Australia (Hing, Russell, & Gainsbury, 2016; Hing, Russell, Gainsbury, et al., 2016), or a nationally representative sample of France (Peretti-Watel, 2003). Two studies (40%) examined a behavioral addiction, specifically problem gambling (Hing, Russell, & Gainsbury, 2016; Hing, Russell, Gainsbury, et al., 2016). A survey found that 58.0%–66.3% thought people who have a gambling problem would experience discrimination (Hing, Russell, & Gainsbury, 2016). Similarly, in a vignette-based experiment, 51.7% of respondents stigmatized people experiencing problem gambling compared to 59.1% for people with AUD (Hing, Russell, Gainsbury, et al., 2016). Morgiève et al. (2019) reported that 50% of participants desired social distance from people with AUD. Comparatively, Deng et al. (2020) reported that 76.5% of participants had negative stereotypes about heroin users and were unwilling to associate with them. Similarly, Peretti-Wattel (2003) reported that 73% of participants perceived heroin users as dangerous and 28% were hostile towards them.

Three studies reported frequencies of self-stigma among people with substance use disorders (Chang et al., 2019; Cunningham et al., 2023; Khalid et al., 2020). Chang et al. (2019) reported that 81.7% of participants with opioid use disorders endorsed high levels of self-stigma. Components of enacted stigma (i.e., the experience of negative treatment from others), self-stigma, and unwillingness of others to associate with them were rated as being experienced by 40%–90% of people who use substances (Khalid et al., 2020). Comparatively, unfair medical treatment, not being listened to or treated with respect, or substance use distracting from physical health was endorsed as occurring most or all of the time by 18–35% of participants with an addiction when seeking physical health treatment from primary care practitioners (Cunningham et al., 2023).

Predictors and correlates of stigma

The 99 studies extensively examined various predictor variables related to stigma. The most common predictors

included the diagnosis or label of the addictive disorder, familiarity with the condition, and psychological distress.

Diagnosis. Twenty-seven studies (behavioral addiction studies = 4, 14.8%; substance-based addiction studies = 17, 63.0%; or both substance-based and behavioral addiction studies = 6, 22.2%) involved a manipulation of the diagnosis to assess public stigma. Five studies reported that behavioral addictions generated less stigma than substance addictions (DePierre, Puhl, & Luedicke, 2013; Hing, Russell, Gainsbury, et al., 2016; Horch & Hodgins, 2008; Lang & Rosenberg, 2017; Quigley et al., 2020). However, three studies reported some similarities in stigma between gambling disorder and AUD (Horch & Hodgins, 2008; Lang & Rosenberg, 2017; Quigley et al., 2020). Lang and Rosenberg (2017) reported that pornography addiction was less stigmatized than heroin and alcohol addiction, with large effects ($\eta^2 = 0.17$), but porn addiction did not significantly differ from marijuana use. DePierre et al. (2013) reported similar effect sizes for differences between behavioral and substance addictions on social distance measures ($\eta^2 = 0.20$), but small effects on attitudinal measures ($\eta^2 = 0.02$ – 0.04). These studies indicate that substance addictions tend to be more stigmatized than behavioral addictions, although there were some similarities across conditions. Addictions to stimulants or heroin experienced more stigma than alcohol, or opioid use problems (Krendl & Perry, 2022). However, addiction to stimulants, opioids or alcohol was associated with more pity or concern, but less blame and negative emotional responses than marijuana addiction (Johnson-Kwochka, Aalsma, Monahan, & Salyers, 2021).

Five studies evaluated the effect of behavioral addiction diagnosis on public stigma (Bannon, Hunter-Reel, Wilson, & Karlin, 2009; Galanis, Weber, Delfabbro, Billieux, & King, 2023; Klein, Briken, Schröder, & Fuss, 2019; Peter, Li, Pfund, Whelan, & Meyers, 2019; Ruddock, Orwin, Boyland, Evans, & Hardman, 2019), finding that diagnosis tended to increase stigma compared to control conditions. The effect of diagnosis on stigma occurred for food addiction even when it was a self-diagnosis (Ruddock et al., 2019) or for gaming and gambling disorder when the control condition had comparable impairment (Peter et al., 2019). Fifteen studies compared substance addictions with other health conditions. More public stigma was observed towards alcohol and drug addictions than towards anxiety, panic disorder, depression, PTSD, bipolar disorder, bulimia, schizophrenia, autism, dementia, intellectual disability, hypertension, diabetes, mental illness in general, anorexia, OCD, and subclinical distress (G. Boysen, Ebersole, Casner, & Coston, 2014; G. A. Boysen, Chicosky, & Delmore, 2020; Deng et al., 2020; Elliott, Ragsdale, & LaMotte, 2024; Fernando, Deane, & McLeod, 2010; Luty, Fekadu, Umoh, & Gallagher, 2006; Mannarini & Boffo, 2015; McGinty, Goldman, Pescosolido, & Barry, 2015; Morgiève et al., 2019; Pennington et al., 2023; Perry, Pescosolido, & Krendl, 2020; Rundle, Cunningham, & Hendershot, 2021). However, in four studies, schizophrenia was stigmatized as much or more than AUD (Francis, Manning, & Cheetham, 2019; Luty et al., 2006; Marie & Miles, 2008; Noblett, Lawrence, & Smith, 2015).



Labels. Five studies ($n = 1$ out of 5, 20.0% behavioral addiction studies) considered the effect on stigma of different labels or terminology used to describe the same illness (Ashford, Brown, Ashford, & Curtis, 2019; Goodyear, Haass-Koffler, & Chavanne, 2018; Kelly, Greene, & Abry, 2021; Pennington et al., 2023; Quigley et al., 2020). One study examined self-stigma (Ashford et al., 2019), whereas three examined public stigma (Goodyear et al., 2018; Kelly et al., 2021; Quigley et al., 2020). Ashford et al. (2019) reported no statistically significant difference in internalized stigma between participants who used “person with a substance use disorder”, “addict”, no label, or both labels to describe themselves. However, Goodyear et al. (2018) reported more public stigma for someone described as a “drug addict” than a person with “opioid use disorder”. Kelly et al. (2021) and Pennington et al. (2023) reported that opioid use and drug use received higher blame scores when presented as a disease or a problem compared to ‘chronically relapsing brain disease’ or ‘brain disease’. The use of ‘problem’ terminology was associated with lower dangerousness, greater recoverability, and lower need for continuing care compared to ‘chronically relapsing brain disease’. Notably, Quigley et al. (2020) reported that the labels of problem gambling, pathological gambling, gambling disorder, and gambling addiction did not differ in terms of public stigma.

Familiarity. Familiarity with people with addiction or associated activities (e.g., drug use) was assessed in 20 studies of public stigma (Adlaf, Hamilton, Wu, & Noh, 2009; Avery et al., 2013; K.L. Brown & Russell, 2019; S.A. Brown, 2011; Dey et al., 2020; Goodyear et al., 2018; Hing, Russell, & Gainsbury, 2016; Hing, Russell, Gainsbury, et al., 2016; Horch & Hodgins, 2008; Johnson-Kwochka et al., 2021; Kloss & Lisman, 2003; Lang & Rosenberg, 2017; Loyal, Sutter, Auriacombe, Serre, & Rasclé, 2022; Mahmoud et al., 2021; Marie & Miles, 2008; Peter et al., 2019; Van Boekel, Brouwers, van Weeghel, & Garretsen, 2014; Washburn et al., 2023; Wild et al., 2021; Wyler et al., 2022). Eleven studies ($n = 2$ out of 11, 18.2% behavioral addiction studies) indicated that greater familiarity, exposure, or expertise reduced or improved stigmatizing perceptions towards the condition (Adlaf et al., 2009; Avery et al., 2013; Brown, 2011; Goodyear et al., 2018; Hing, Russell, & Gainsbury, 2016; Hing, Russell, Gainsbury, et al., 2016; Johnson-Kwochka et al., 2021; Loyal et al., 2022; Van Boekel et al., 2014; Washburn et al., 2023; Wild et al., 2021). Interestingly, Adlaf et al. (2009) reported that peer and own drug use had strong negative relationships with stigma, indicating that familiarity reduces stigma. However, peer drug use was a stronger predictor than own drug use on perceptions of public stigma (Adlaf et al., 2009). Four studies ($n = 2$ out of 4, 50% behavioral addiction studies) showed no relationship between familiarity and stigma (Dey et al., 2020; Horch & Hodgins, 2008; Lang & Rosenberg, 2017; Wyler et al., 2022). Five studies ($n = 2$ out of 5, 40.0% behavioral addiction studies) reported mixed results (Brown & Russell, 2019; Kloss & Lisman, 2003; Mahmoud et al., 2021; Marie & Miles, 2008; Peter et al., 2019). For example, Mahmoud et al. (2021) found that

exposure to problems through work or family reduced stigmatizing perceptions, whereas exposure via friends or self-exposure to the problem had no effect. Only one study experimentally manipulated contact with the stigmatized group by using video content of people with a gambling addiction (Brown & Russell, 2019). This study reported that the contact intervention increased perceptions of dangerousness, pity, and desired social distance towards people with a gambling addiction (Brown & Russell, 2019). However, contact did reduce fear towards people with a gambling addiction (Brown & Russell, 2019).

Psychological distress and wellbeing. Fourteen studies ($n = 3$ out of 14, 21.4% behavioral addiction studies) included measures relating to psychological distress, general well-being, or quality of life. All studies that measured the relationship between psychological distress and self-stigma reported positive relationships (Cooper, Campbell, Larance, Murnion, & Nielsen, 2018; Hing & Russell, 2017a; Lee et al., 2023; Moore et al., 2020; Pérez-Pedrogo et al., 2022), including two studies that identified weak relationships only (Ahorsu et al., 2020; Opsal, Kristensen, Vederhus, & Clausen, 2016). A positive relationship was also found in a study investigating psychological distress and public stigma (Dey et al., 2020). Studies investigating the relationship between self-stigma of substance addictions and quality of life had mixed findings, where one study reported a negative relationship (Sarkar et al., 2019) and the other reported no relationship (Brown-Johnson et al., 2015). Psychological flexibility (i.e., being present in the moment, and accepting of thoughts and feelings) (Uygur et al., 2020) and self-esteem (Chang et al., 2020) were negatively related to self or perceived stigma among people with substance or alcohol use disorders. Perceived discrimination among people with substance use problems was positively associated with executive dysfunction (Razeghian Jahromi, Sadeghi Mazidi, Javid, & Moradi Bavi, 2023). Additionally, the study by Ashford et al. (2019) examined self-esteem but did not report outcomes with respect to self-stigma of substance use. Overall, most studies reported that higher distress and lower wellbeing were related to greater self and public stigma.

Neurophysiological explanations of addiction. Five experimental studies examined the effect of promoting the biological processes of addiction on public stigma (Galanis et al., 2023; Kelly et al., 2021; Latner, Puhl, Murakami, & O'Brien, 2014; Montemarano & Cassin, 2021; Racine, Sattler, & Escande, 2017). Most found that using terminology that described the problem and/or its associated neurological processes (e.g., ‘chronically relapsing brain disease’) reduced stigma or blame ($n = 3$ out of 4, 75.0% behavioral addiction studies) (Galanis et al., 2023; Kelly et al., 2021; Latner et al., 2014; Montemarano & Cassin, 2021). However, two of these studies also reported increases in other aspects of stigma (Galanis et al., 2023; Kelly et al., 2021). Furthermore, Racine et al. (2017) reported no significant effect of brain disease explanations of cocaine addiction on stigma. The experimental manipulation of



neurophysiological descriptions in these studies indicate directionality of the effect of these explanations on stigma (i.e., pre-existing stigma is not causing the participant to view the addiction as less of a biological process) and controls for possible confounding effects. By comparison, five correlational studies ($n = 2$ out of 5, 40.0% behavioral addiction studies) have demonstrated mixed (Kloss & Lisman, 2003; Ruddock et al., 2019; Rundle et al., 2021; Wild et al., 2021) and inconclusive (Bannon et al., 2009) results.

Stigma measurement

Summaries of the 21 reviewed stigma measures are reported in Table 1. Nine measures assessed substance addiction stigma; seven measured behavioral addiction stigma; and five measured both. Six of the behavioral addiction measures were developed for weight stigma which were commonly used in reference to food addiction, and one was developed for problem gambling stigma (SS-PG). Only one measure was specifically for children and assessed public stigma (Watson et al., 2004).

Stigma types. There were 8 public stigma measures, 8 self-stigma measures, and 5 measures assessing public stigma relating to a specific person (e.g., a vignette). Item totals ranged from 6 (IA-RSS) to 47 (AFAT), with a mean of 18.9 items. Most measures ($n = 19$) used a Likert scale with 4–9 points. Only 1 scale had a dichotomous agree/disagree coding (IA-RSS), and the remaining measure used semantic differential scales (FPS-S). The DDS was the only measure to provide cut-off scores which indicate devaluation and discrimination of people with mental illness past the midpoint of the scale (Horch & Hodgins, 2008; Quigley et al., 2020).

Validation. Two types of validation were considered: comparison of stigma scores for an addiction versus a control condition (discriminant validity) and comparing the measure to other stigma measures (convergent validity). Five measures (IA-RSS, SSMIS, r-AQ, AQ-20, DSS) did not have any validation reported by the studies in this review (Brener et al., 2022; Francis et al., 2020; Harnish et al., 2016; Horch & Hodgins, 2008; Van Boekel et al., 2014). The AQ-27 has the strongest convergent and discriminant validity for both behavioral and substance addiction. The AQ-27 consistently correlated with related measures, such as lower motive to work with opioid users (Mahmoud et al., 2021), and higher social distance (Peter et al., 2019), and was the only measure with any strong correlations with other relevant measures (i.e., the AMIQ (Luty et al., 2006)). Most of the AQ-27 subscales indicated greater stigma for gamers and gamblers compared to someone experiencing a financial crisis with comparable impairment (Peter et al., 2019). A 'physically disabled' label generated less stigma than a cocaine addict, food addict, or smoker on the AQ-27 subscales (DePierre et al., 2013).

The BSDS (Ledford et al., 2021), MCRS (Van Boekel et al., 2014), ISMI (Can Gür et al., 2022), and SSS-S (Chang et al., 2020; Chen et al., 2022) showed adequate convergent

validity with other measures. Conversely, the FPS-S (DePierre et al., 2013), WBIS and AFA (Burmeister et al., 2013) measures of weight stigma, relating to food addiction, did not have significant correlations for all their subscales or with all subscales of related measures. The self-stigma measures, PSQ (Ertl et al., 2021), SS-PG, WBIS (Ahorsu et al., 2020), and WSSQ (Meadows, Nolan, & Higgs, 2017) appear to have adequate discriminant validity. The remaining weight stigma measures, AFA (Burmeister et al., 2013; Latner et al., 2014; Ruddock et al., 2019), FPS-S (Ruddock et al., 2019), and AFAQ-R (Meadows et al., 2017) were inconsistent in that not all subscales detected stigma differences between vignettes with and without food addiction.

Components of stigma

Table 2 summarizes the components of stigma in each measure as identified by Attribution Theory, the Danger Appraisal Hypothesis, and Social-Cognitive Models of stigma (Corrigan et al., 2001, 2003, 2009; Link & Phelan, 2001, 2004). Overall, the AQ-27, AQ-21, and r-AQ provide the most comprehensive assessment of stigma, with at least 8 of the stigma components being assessed, followed by the SSS-S, DSS, and the MCRS, which cover 6 stigma components. Avoidance was the most frequently measured component of stigma ($n = 13$, 61.9%), followed by attributions of blame and responsibility ($n = 12$, 57.1%), and affective responses ($n = 11$, 52.4%) and stereotypes ($n = 11$, 52.4%) which mostly occurred in self-stigma measures. Coercion appeared the least frequently ($n = 2$, 9.5%).

DISCUSSION

This review summarizes the literature on addiction stigma in relation to its frequency, predictors, correlates, and measurement. Most of the 99 reviewed studies focused on stigma related to substance-based addictions, with 29 studies on behavioral addictions which are becoming increasingly recognized in clinical and public health. Behavioral addiction studies have tended to focus on gambling disorder and food addiction, and half of all stigma studies on gaming disorder were published in the last two years (Chang et al., 2023; Galanis et al., 2023; Lee et al., 2023). Frequency estimates of stigma varied across studies. In the lowest estimated frequency of addiction stigma, 12% of people endorsed stigma as a barrier to treatment seeking for people with an addiction (Jullian, Deltour, & Franchitto, 2023). The highest estimate indicated that 90% of individuals experiencing substance use problems reported experiences of stigma (Khalid et al., 2020). Consistent with experiments comparing diagnoses (Krendl & Perry, 2022), certain groups emerged as more frequently experiencing stigma, such as individuals with heroin-related problems (Deng et al., 2020) and adults with substance use problems (Balan et al., 2023). However, large variations in stigma estimates may reflect a



Table 1. Summary of Most Commonly Used Stigma Measures ($n = 21$) identified in Reviewed Studies ($n = 99$)

Tool	Original author	Inclusion in studies in this review	No. of studies (No. of cites)	No. of items	Type of stigma	Relevant conditions	Validation
AFA	Crandall (1994)	5	115 (2082)	13	Public Stigma	Overweight, Obesity, Food Addiction	AFA subscales dislike and fear of fat were positively correlated with food addiction but willpower was not related (Burmeister, Hinman, Koball, Hoffmann, & Carels, 2013). However, only fear of fat was consistently correlated with other eating disorder scales and the WBIS (Burmeister et al., 2013). Ruddock et al. (2019) reported no effect of food addiction diagnosis on AFA. Latner et al. (2014) reported that fear of fat and willpower was lower for participants who read addiction compared to non-addiction explanations of over-eating.
AFAQ-R	Quinn and Crocker (1999)	1	115 (433)	18	Public Stigma	Overweight	Meadows et al. (2017) found little to no difference between food addiction (presence, absence, or self-perceived) on AFAQ-R subscales.
AFAT	Lewis, Cash, and Bubb-Lewis (1997)	2	115 (264)	9–47 used	Public Stigma	Overweight, Obesity, Binge Eating	Binge eaters received more blame and lower ratings of attractiveness compared to non-binge eaters (Bannon et al., 2009). Montemarano and Cassin (2021) did not report validation of the AFAT.
r-AQ	Watson et al. (2004)	1	635 (295)	9	Person-Specific	Schizophrenia, AUD, pathological gambling, cancer	Horch and Hodgins (2008) did not report validation of the r-AQ (listed as the AQ-SF).
AQ-20	Corrigan et al. (2002)	1	635 (835)	20	Public Stigma	Substance Addictions	Cannot draw conclusions about validation of the AQ-20 from Van Boekel et al. (2014) as it is unclear which questions from the AQ-20 were used.
AQ-27	Corrigan et al. (2003)	6	635 (833)	21–27	Person-Specific	Schizophrenia, SUD, gambling disorder, depression, bulimia, anxiety, food addiction, obese, physically disabled	The AQ had a strong positive correlation with the AMIQ (Luty et al., 2006) and SDS (but negative for the subscale pity) (Peter et al., 2019), the subscales fear and responsibility negatively correlated with motivation to work with OUs (Mahmoud et al., 2021). Five subscales had more stigma (others were not significant) for gamers and gamblers than someone in a financial crisis (Peter et al., 2019). The physically disabled label had lower AQ-27 subscale scores than cocaine addict, food addict, or smoker (DePierre et al., 2013). DePue, Tauscher, Liu, and Woodliff (2024) and Galanis et al. (2023) reported no validation of the AQ-27.
BSDS	Modification by Gillespie-Lynch et al. (2015)	1	669 (345)	3	Person-Specific	Opioid Use	Ledford, Lim, Namkoong, Chen, and Qin (2021) reported that danger appraisal had a strong negative correlation with Social Distance (Measured by BSDS), Study 1: $r = -0.49$, $p < 0.01$, and Study 2: $r = -0.60$, $p < 0.01$. Dambrun et al. (2024) and Yashikhina et al. (2023) reported no validation of the BSDS.
DSS	Griffiths, Christensen, Jorm, Evans, and Groves (2004)	1	48 (811)	6 out of 18 used	Public Stigma	Schizophrenia, AUD, methamphetamine use	Francis et al. (2020) did not report validation of the DSS.

(continued)





Table 1. Continued

Tool	Original author	Inclusion in studies in this review	No. of studies (No. of cites)	No. of items	Type of stigma	Relevant conditions	Validation
FPS-S	Bacon, Scheltema, and Robinson (2001)	3	161 (301)	14	Public Stigma	Overweight, Obesity, Food Addiction	FPS-S was positively correlated with SD and weakly to responsibility of a food addict, but unrelated to sympathy/concern, or anger/disgust (DePierre et al., 2013). Person-specific FPS-S was higher for vignettes with food addiction compared to a control condition with no food addiction information (Ruddock et al., 2019).
IA-RSS	Kalichman et al. (2009)	1	319 (510)	4	Self-Stigma	Injecting Drug Use	Brener et al. (2022) did not report any validation of the modified version of the IA-RSS.
ISMI	Ritsher, Otilingam, and Grajales (2003)	1	348 (1642)	29	Self-Stigma	Substance Use	Can Gür, Tanriverdi, Ariti, and Özgün Öztürk (2022) reported that the ISMI was used to provide criterion-concurrent validity for the Substance Use Stigma Mechanism Scale (SU-SMS) and had a significant positive correlation ($r = 0.55$).
MCRS	Christison, Haviland, and Riggs (2002)	2	94 (156)	11	Person-Specific	Substance use, Schizophrenia	Avery et al. (2013) and Wyler et al. (2022) had no validation of the MCRS. Van Boekel et al. (2014) reported that fear, anger, and attributions of responsibility were related to lower regard.
MISS	Adaption by Day, Edgren, and Eshleman (2007)	1	79 (182)	28	Public Stigma	Gambling, Depression, OCD, AUD, Asthma	Quigley et al. (2020) reported that the subscales interpersonal anxiety, relationship disruption, poor hygiene, and professional efficacy were endorsed more and treatability less, for gambling than asthma, but did not differ for visibility or recovery.
PDDS	Link (1987)	5	62 (2118)	12–13	Perceived and anticipated public Stigma	Depression, OCD, CBD, Asthma, AUD, Cancer, Schizophrenia, Gambling	Horch and Hodgins (2008) had no validation of the PDDS. However, Quigley et al., (2020) reported that Asthma had significantly less perceived stigma (measured by the PDDS) than gambling addiction (or depression, OCD, AUD, CBD). Billian et al. (2024), Brown and Russell (2019), and Hing, Russell, and Gainsbury (2016), did not report validation of PDDS for addiction specifically.
PSQ	Lawrence, Fauerbach, Heinberg, Doctor, and Thombs (2006)	1	97 (122)	11	Self-perceived ratings	Alcohol Use	Ertl et al. (2021) PSQ decreased following treatment for alcohol use.
SDS-SU	Adapted for SU by Brown (2011)	3	46 (116)	7	Person-Specific	SU and behavioral addictions.	Neither Brown (2011) nor Lang and Rosenberg (2017) reported validation of the SDS-SU.
SSMIS	Corrigan, Watson, and Barr (2006)	1	107 (1686)	40	Self-stigma, self-perceived	Mental health, Substance Abuse	Lu (2024) reported that SDS-SU was negatively associated with anger. Harnish et al. (2016) did not report any validation of the SSMIS.
SS-PG	Hing & Russell (2017, a, b)	2	55 (23)	19	Self-Stigma	Problem Gambling	Hing and Russell (2017a) reported that SS-PG was positively correlated with Problem Gambling Severity, $r = 0.40$, $p < 0.05$, and psychological distress, $r = 0.44$, $p < 0.05$.

(continued)

Table 1. Continued

Tool	Original author	Inclusion in studies in this review	No. of studies (No. of cites)	No. of items	Type of stigma	Relevant conditions	Validation
SSS-S	Mak and Cheung (2010)	4	162 (201)	9	Self-Stigma	Substance Use	Chang et al. (2020) reported that the SSS-S explained 13% of variance in PSPS-TV, with a positive relationship. Lee et al. (2023) reported that SSS-S was related to problem smartphone and social media but not problem gaming. Chen et al. (2022) also reported significant correlations of Problem social media $r = 0.22$, smartphone $r = 0.30$, and gaming $r = 0.17$, with self-stigma. Chang et al. (2023) reported significant small positive relationships of the cognitive, affective, and behavioral scales of the SSS-S with problem gaming ($r = 0.19, 0.24, 0.16$), problem use of social media ($r = 0.20, 0.27, 0.19$) and smartphones ($r = 0.32, 0.36, 0.28$).
WBIS	Durso and Latner (2008)	3	424 (524)	11	Self-Stigma	Overweight, Obesity	The WBIS (at baseline) was correlated food addiction (at three-month follow-up), $r = .21, p < 0.01$ (Ahorsu et al., 2020). The WBIS correlated with the fear of fat subscale of the AFA, $r = 0.46, p < 0.01$, but not willpower or dislike (Burmeister et al., 2013). Papatsaraki et al. (2024) reported that the WBIS subscales were positively correlated with food addiction ($r = 0.11, p = 0.038; r = 0.34, p < 0.001$).
WSSQ	Lillis, Luoma, Levin, and Hayes (2010)	1	198 (242)	12	Self-Stigma	Overweight, Obesity	Meadows et al. (2017) reported that the WSSQ is significantly correlated with food addiction symptoms, $p < 0.001, r = 0.34–0.45$.

Note. AFA: Anti-Fat Attitudes Scale, AFAQ-R: Anti-Fat Attitudes Questionnaire Revised, AFAT: AntiFat Attitudes Test, AQ-20: Attribution Questionnaire (20 items), AQ-27: Attribution Questionnaire (27-items), r-AQ: Attribution Questionnaire Short Form, BSDS: Bogardus Social Distance Scale, CBD: Compulsive Buying Disorder, DDS: Devaluations-Discrimination Scale, DSS: Depression Stigma Scale, FPS-S: Shortened Fat Phobia Scale, IA-RSS: Internalized Aids-Related Stigma Scale, MCRCs: Medical Condition Regard Scale, MISS: Mental Illness Stigma Scale, OU: Opioid Use, PSQ: Perceived Stigma Questionnaire, SDS-SU: Social Distance Scale for Substance Users, SSMIS: Self-Sigma of Mental Illness Scale, SS-PG: Self-Stigma of Problem Gambling, SSS-S: Self-Stigma Scale – Short, SU: Substance Use, WBIS: Weight Bias Internalization Scale, WSSQ: Weight Self-Stigma Scale.





Table 2. Components of stigma addressed by stigma measures

Measure	Signals	Stereotypes	Ster: Blame & Responsibility	Ster: Dangerousness	Affective Response	Emot: Pity	Emot: Anger	Emot: Fear	Discrimination	Discr: Avoidance	Discr: Coercion	Discr: Segregation	Helping/ Empowerment
Person-Specific Stigma													
Medical Condition Regard Scale (MCRS)		✓			✓	✓	✓			✓			✓
Social Distance Scale for Substance Users (SDS-SU)										✓			✓
Attribution Questionnaire – 27 (AQ-27)			✓	✓		✓	✓	✓		✓	✓	✓	✓
Attribution Questionnaire Short Form (r-AQ)			✓	✓		✓	✓	✓		✓		✓	✓
Attribution Questionnaire – 21 (AQ-21)			✓	✓		✓	✓	✓		✓	✓	✓	✓
Public Stigma													
Bogardus Social Distance Scale (BSDS)										✓			
Perceived Devaluation-Discrimination Scale (PDDS)		✓	✓						✓	✓			✓
Mental Illness Stigma Scale (MISS)	✓	✓			✓			✓		✓			
Depression Stigma Scale (DSS)	✓		✓	✓	✓				✓	✓			
Shortened Fat Phobia Scale (FPS-S)	✓	✓	✓										
Antifat Attitudes (AFA/AFAQ)			✓		✓								
Antifat Attitudes Test (AFAT)	✓		✓							✓			
Anti-Fat Attitudes Questionnaire Revised (AFAQ-R)			✓		✓								
Self-Stigma													
Weight Bias Internalization Scale (WBIS)	✓	✓			✓							✓	
Weight Self-Stigma Questionnaire (WSSQ)		✓	✓		✓				✓				

(continued)

Table 2. Continued

Measure	Signals	Stereotypes	Ster: Blame & Responsibility	Ster: Dangerousness	Affective Response	Emot: Pity	Emot: Anger	Emot: Fear	Discrimination	Discr: Avoidance	Discr: Coercion	Discr: Segregation	Helping/ Empowerment
Perceived Stigmatization Questionnaire (PSQ)	✓					✓			✓	✓			✓
Self-Stigma of Mental Illness Scale (SSMIS)		✓			✓								
Self-Stigma of problem gambling (SS-PG)		✓	✓		✓								
Internalized Aids-Related Stigma Scale (IA-RSS)	✓	✓	✓		✓								
Internalized Stigma of Mental Illness Scale (ISMI)		✓							✓	✓		✓	
Self-Stigma Scale-Short (SSS-S)	✓	✓			✓	✓	✓			✓			

Note. Ster: Stereotypes, Emot: Emotions, Discr: Discrimination.

lack of representative samples or lack of consistency in the definition and measurement thresholds for stigma. For example, dichotomous measurement of stigma varied in definition from negative stereotyping to hostility towards someone with an addiction (Deng et al., 2020; Peretti-Wattel, 2003).

Studies reported that substance addictions tend to receive more public stigma than most physical or mental illnesses, this is consistent with a past review of AUD (Kilian et al., 2021). Substance addictions also tend to be more stigmatized than behavioral addictions. Greater stigma for substance addictions could relate to perceptions of the condition as being due to a biological cause and therefore more dangerous, less likely to recover, and more inherent (Loughman & Haslam, 2018). This finding is supported by past research which has reported a relationship between endorsing biogenetic causes of substance addictions and discrimination (Kilian et al., 2021). Theories related to biogenetic explanations of mental illness suggest that these causal models may reduce blame by making the problem seem more inherent, but this explanation can also increase perceived dangerousness and desired social distance (Kvaale, Gottdiener, & Haslam, 2013; Loughman & Haslam, 2018). A review by Angermeyer, Holzinger, Carta, and Schomerus (2011) reported that perceived responsibility for a person's mental illness was largely unrelated to discriminatory outcomes, which could explain the paradoxical effects of biogenetic explanations. However, stigma research is yet to compare rates of endorsement of biogenetic causes between substance and behavioral addictions.

Both substance and behavioral addiction diagnoses were more stigmatized compared to no diagnosis or suffering a non-clinically defined problem or impairment. However, it is not clear how much public stigma based on diagnosis might be internalized by people with an addiction or affect their willingness to seek help. These findings inform continuing debates on stigma affecting activities referred to in diagnostic categories for behavioral addictions such as gaming disorder and food addiction (Aarseth et al., 2017; Dullur & Starcevic, 2018; Gearhardt & Hebebrand, 2021; Rasmussen, 2014; Ruddock et al., 2019; Van Rooij et al., 2018). Further studies are needed to determine the conditions under which regular and harmful engagement in everyday activities is negatively perceived.

Large survey studies suggest that psychological distress is a strong predictor of stigma. Both public and self-stigma are positively correlated with psychological distress (Ahorsu et al., 2020; Dey et al., 2020; Fung et al., 2021; Moore et al., 2020; Opsal et al., 2016) and self-stigma was negatively related to concepts like self-esteem (Chang et al., 2020) and psychological flexibility (Uygur et al., 2020). These findings are consistent with the Displaced Aggression hypothesis which describes that negative moods can prime people to make more negative judgements of otherwise ambiguous cues (Ottati, Bodenhausen, & Newman, 2005).

Another important finding was that studies reported a negative relationship between familiarity with addiction and public stigma (Adlaf et al., 2009; Avery et al., 2013;

Brown, 2011; Dey et al., 2020; Goodyear et al., 2018; Hing, Russell, Gainsbury, & Nuske, 2016; Johnson-Kwochka et al., 2021; Loyal et al., 2022; Van Boekel, Brouwers, van Weeghel, & Garretsen, 2014; Wild et al., 2021). However, most studies of familiarity used correlational survey designs. Only one experimental study (Brown & Russell, 2019) manipulated contact, using video footage rather than in-person contact. These findings support the contact hypothesis which suggests that positive contact with stigmatized people can reduce stigma (Couture & Penn, 2003; Desforges et al., 1991; Islam & Hewstone, 1993) and tentatively indicate that increasing contact with people with addiction could be an effective intervention for stigma. In the literature, it has been theorized that close relationships with people with an addiction may also increase stigma towards people with an addiction when burden due to caretaking or stigma by association is experienced by those close to them (Corrigan & Nieweglowski, 2019). This theoretical U-shaped trend for familiarity where stigma is lowest for people with moderate involvement with people with an addiction is not evaluated by most quantitative analyses which only consider linear relationships. Therefore, it is feasible that the more mixed findings of familiarity on behavioral addiction stigma compared to substance addictions could relate to different distributions or nonlinear relationships of familiarity to stigma.

Experimental studies, mostly relating to behavioral addictions, demonstrate different effects of explaining addiction as a biological process on stigma towards addictions (Kelly et al., 2021; Latner et al., 2014; Montemarano & Cassin, 2021). This research generally supports theories that neurobiological explanations should reduce blame by reducing perceptions of the illness as a moral or character flaw (Buchman, Illes, & Reiner, 2010). Neurobiological explanations of an illness may increase stigma by presenting it as more inherent, harder to treat, and requiring greater distance from the person (Loughman & Haslam, 2018). However, correlational research examining disease model or biological process endorsement of substance addictions on stigma has offered mixed support for this possibility (Bannon et al., 2009; Kloss & Lisman, 2003; Ruddock et al., 2019; Rundle et al., 2021; Wild et al., 2021).

Measures used for addiction stigma research were commonly adaptations of medical or other mental health stigma scales. Few specific measures have been developed for other behavioral addictions, with only two measures developed for problem gambling. Measures with cut-off scores that consider spectrums from negative to positive attitudes were scarce and would be beneficial for understanding stigma prevalence or the effects of stigma interventions. The AQ-27, a person-specific measure of public stigma, had the strongest support for its construct and convergent validity. Validation of other measures of self-stigma, and public stigma measures assessing perceptions of the illness more generally, could be beneficial for addiction research. This review also indicates that food addiction stigma measures should be developed, as the use of weight stigma measures in this area do not show consistent convergent or discriminant

validity. The analysis of stigma components showed that avoidance was the most frequently measured. Person-specific stigma measures tended to cover the most stigma components, and social distance measures include few components of stigma and do not capture instances where someone may have negative thoughts towards a group but do not intend to act on these thoughts.

Limitations

This review has several limitations. Papers were excluded if they were not written in English or peer-reviewed, which may limit the representativeness of the studies. Additionally, some studies that used stigma as a predictor rather than an outcome measure in correlational research, or that used more generic measures of attitudes rather than stigma-specific measures, may have provided useful insights but did not fit the inclusion criteria. For example, studies examining barriers to treatment seeking may have considered shame or embarrassment as concepts related to self-stigma but were considered beyond the scope of this review if they did not intend to measure stigma (e.g., Evans & Delfabbro, 2005). Some substance addiction stigma measures were excluded due to the criteria for selecting measures. Exclusion of lesser-used measures may have disproportionately affected addiction-specific measures as they are more specialized and may be used less than measures which apply to a range of illnesses, such as the Methadone Maintenance Treatment Stigma Mechanisms Scale (Smith et al., 2020), or the Pregnant Smoker Stigma Scale (Loyal et al., 2022). Therefore, an extended assessment of addiction stigma measures, which was beyond the scope of the present review, could provide useful insights. Furthermore, the use of a specific theory to define which components of stigma were examined may be biased against measures based on different theories.

Future directions

This review highlights several areas for further investigation. An important area is the study of whether labels of gaming disorder and other emerging behavioral addictions (see Brand et al., 2022) shift public perceptions of these conditions (Galanis et al., 2021, 2023). Research is needed to assess the prevalence of addiction stigma, and study its real-world effects on help-seeking. Relatedly, the field would benefit from standardized measures of self and public stigma with cut-off scores. Research could further investigate the relationship between addiction stigma and psychological distress, and the extent to which psychological flexibility may mediate this relationship (Hayes et al., 2004; Lillis & Hayes, 2007; Masuda, Price, Anderson, Schmertz, & Calamaras, 2009). Further studies could identify how much public stigma leads to self-stigma, shame, and embarrassment, and subsequently affects treatment outcomes such as help-seeking behaviors. The ameliorating effects of familiarity and lower psychological distress on stigma could inform intervention programs. Studies could evaluate whether educational and contact programs increase knowledge and understanding of addiction, and reduce stigma and



improve attitudes toward sufferers. More robust designs such as contact interventions (e.g., Brown & Russell, 2019) would gain insights into causal relationships between stigma and mental health.

CONCLUSIONS

This review critically summarized research into behavioral and substance addiction stigma from the last 20 years. Public and self-stigma were associated with greater psychological distress; addiction diagnoses are associated with more stigma than other mental and physical health conditions; and substance-based addictions are stigmatized more than behavioral addictions. Greater familiarity with addictive conditions tended to be associated with lower stigma. Although stigma frequency rates vary greatly, these findings indicate that people experiencing addiction perceive stigmatizing attitudes and behaviors that can become internalized as harmful self-stigma. Countermeasures to reduce stigma, such as public education, are currently underdeveloped. Further research is needed to evaluate the nature and prevalence of addiction stigma and inform the development of countermeasures to combat stigma affecting the mental health and quality of life of individuals and their families.

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SUPPLEMENTARY MATERIAL

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