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Stigma and substance use disorders: an international phenomenon

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Abstract

Purpose of the review—To collect and update published information on the stigma associated with substance abuse in non-clinical samples, which has not been recently reviewed.

Recent findings—Searching large databases, a total of only 20 studies were published since 1999, with the majority of studies conducted outside the United States. Using major stigma concepts from a sociological framework (stereotyping, devaluation in terms of status loss, discrimination and negative emotional reactions), the studies reviewed predominantly indicated that the public holds very stigmatized views towards individuals with substance use disorders, and that the level of stigma was higher towards individuals with substance use disorders than towards those with other psychiatric disorders.

Summary—The prevalence of substance use disorders is increasing in the U.S. general population, but these disorders remain seriously under-treated. Stigma can reduce willingness of policy-makers to allocate resources, reduce willingness of providers in non-specialty settings to screen for and address substance abuse problems, and may limit willingness of individuals with such problems to seek treatment. All of these factors may help explain why so few individuals with substance use disorders receive treatment. Public education that reduces stigma and provides information about treatment is needed.

Keywords

stigma; discrimination; drug abuse; substance use disorder

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Introduction

Substance use disorders (SUDs), or addiction, are complex disorders that affect brain function and behavior, are characterized by impaired functioning and considerable harm to the individuals with the disorders and to society as a whole. Although evidence-based treatments exist, a large gap exists between the number of those with this disorder and those who receive treatment [1-4]. To address this gap, the National Institute of Drug Abuse has recently identified understanding and decreasing the stigma of SUD as a major priority [5]. Mental illness stigma has been examined in a multitude of studies, and is linked with poorer psychological outcomes, symptoms, and social functioning [6]. While negative public attitudes (or *public stigma*) towards SUDs and substance problems have been identified in prior national surveys [7-9], the last review of this topic, published in 2011, focused only on alcohol [10]. Updating knowledge about the public stigma associated with SUDs is urgent given the increasing prevalence of these disorders in the U.S. general population [1, 3, 4, 11], and the need to educate the public and policy makers who shape allocation of governmental resources [12, 13].

To frame our review, we utilize three major stigma concepts from a major sociological framework that elucidates how societal forces exclude stigmatized individuals from everyday life [14]. The first, *stereotyping*, occurs when public conceptions link labeled individuals to negative characteristics; e.g. viewing people with SUDs as dangerous. The second is *emotional reactions*: the affective responses to stigma endorsed by the general public (e.g., fear, disgust) towards those with SUDs. The third concept, *status loss and discrimination*, occurs when individuals with SUDs are perceived as less valued and treated unjustly (i.e., discriminated against) by others. Discrimination can occur either when individuals treat another person unfairly, or when institutional practices disadvantage individuals with SUDs.

We utilize this framework to organize our review of what is known about public stigma and SUDs, to identify the most severe areas of stigma, and to identify potential mechanisms to decrease this stigma.

Methods

To identify studies of public stigma towards individuals with SUDs, we conducted a literature search using three major databases: PubMed, PsychINFO and Web of Science. No starting date restriction was set; the final date of inclusion was August 8th, 2016. No restrictions were placed on language.

To ensure comprehensive inclusion, we utilized search terms of 'alcoholism' OR 'alcohol abuse' OR 'alcohol dependent' OR 'alcoholic' OR 'drinking' OR 'problem drinker' OR 'addiction' OR 'drug' OR 'substance' OR 'drug abuse' OR 'drug dependence' OR 'addict' OR 'drug problems' AND ('stigma' OR 'stereotype' OR 'prejudice' OR 'social distance') AND ('representative' OR 'population'). This search strategy yielded 1461 articles in PubMed, 439 in PsychINFO and 938 in Web of Science. Removing duplicate studies resulted in a total of 2386 studies.

Two reviewers (M.G., L.W.) together screened each title, abstract, and, where appropriate, the full text of all identified documents. Studies were included if they met these criteria: 1) ascertained a general population sample and focused on groups including people with SUDs; 2) examined *public stigma*: attitudes towards drug users or people with substance-related disorders; studies that only focused on alcohol were excluded; 3) while we utilized an initial search criterion of studies that used population-based, representative sampling, the small number of articles found led us to add studies that used university-based or convenience sampling. However, patient-based samples were excluded. This search yielded 15 relevant articles. Subsequent retrieval of citations and additional electronic searches for the authors of these 15 articles yielded another 5 studies. The vast majority of articles were excluded because they focused on stigmatized conditions other than substance use, including other mental illnesses (e.g., psychosis, depression), or communicable diseases (e.g. HIV/AIDS). Furthermore, among studies that examined SUDs, articles were excluded because they examined self- or internalized stigma, or stigma of groups other than the general public (e.g., employers). A final set of 20 studies were selected (See Table 1). Note that in the text, we added an * to indicate whether a selected article was published in 2015 or 2016, and highlight contributions from these articles when applicable.

Results

Of the 17 studies, 14 used nationally-representative sampling, 2 used university sampling and 2 used convenience sampling, this totals to 18 studies, given that one article [15*] consisted of two separate studies (Table 1). The most prominent study sites were the U.S. (5 studies), U.K. (3 studies), and other European countries (4 studies). All studies assessed stigma towards use/misuse/dependence/addiction involving 1 of the following: (a) alcohol, 10 studies; (b) unspecified drug or substance, 9 studies; (c) cocaine, 4 studies; (d) heroin, 2 studies; (e) cannabis, 3 studies; (f) injection drugs, 2 studies; (g) methamphetamine, 1 study; and (h) prescription drugs, 1 study. All studies utilized cross-sectional designs; most (13 studies) used survey methods. Of these 13 studies, 10 used non-vignette designs; the remaining 3 studies utilized vignettes depicting an individual with a SUD. An additional four studies employed an experimental design, with randomized vignette and control conditions.

Study results were separated into three stigma domains [14] (Table 1):

Stereotyping

Fifteen studies (75%) assessed stereotypes endorsed towards individuals with SUDs [7, 9, 12, 15*-26]. Five main stereotypes were identified: (a) *Dangerousness* and *unpredictability*—whether individuals are perceived as dangerous or unpredictable resulting from their SUD; (b) *Decision-making ability*—whether individuals with SUD are perceived as capable of making autonomous decisions (e.g., regarding treatment and money management); (c) *Attributional beliefs*—whether individuals are perceived as blameworthy or responsible for their SUD, as well as the level of addictiveness (i.e., uncontrollability) associated with the problem behavior once the addiction is developed; (d) *Treatment prognosis*—the extent to

which substance users are perceived as responsive to treatment; (e) *Immorality*— a character weakness associated with moral failure linked with the SUD.

Dangerousness and unpredictability—Eleven studies evaluated this public stereotype among individuals with SUDs [7, 9, 12, 15*, 17-22, 26]. Two nationally representative studies in the Netherlands [19] and the U.S. [9] showed that 71% to 87% of respondents agreed that people with an addiction tended to be violent towards others. In U.K. studies from 1998 and 2003 [7], participants believed that individuals with drug addiction are more dangerous (75%) and unpredictable (78%) than individuals with severe depression, panic attacks, dementia or eating disorders. Consistent findings emerged from five additional surveys conducted in different countries [12, 15*, 17, 18*, 21] three [12, 17, 18*] based on representative samples, with one contradictory finding [22]. A study comparing perceptions of dangerousness towards hypothetical vignette characters found little difference between “harder drugs” (i.e. methamphetamine and heroin) versus “softer drugs” (cannabis) [20]. Among the more recently-published articles, one study [15*] used Latent Class Analytic techniques to confirm that people with an alcohol or drug addiction were rated as most highly dangerous when compared with other mental illnesses. Further, a second study [18*] found that dangerousness contributed most highly to stigmatizing attitudes towards heroin addiction even when compared with four other constructs (contagion, treatability, immorality and blame-worthiness).

Decision-making ability—The 1998 U.S. study [9] examined this public stereotype by type of psychiatric diagnosis. Comparing cocaine dependence to schizophrenia, major depression and alcohol dependence, >70% of respondents viewed individuals with cocaine dependence as “not very” or “not at all” able to make treatment decisions, compared with 9.3%-25.7% for the other disorders. Further, >90% felt individuals with cocaine dependence were “not very” or “not at all” able to manage money, compared with 70.2%, 29.8%, 59.6% for schizophrenia, major depression and alcohol dependence, respectively.

Attributional beliefs—Across three studies [7, 16, 18*, 25*], individuals with SUDs were consistently rated as substantially more to blame for their condition (59-67%) than individuals with other psychiatric disorders, including schizophrenia (4-6% of respondents endorsing blame). In contrast, only 20% of respondents in the Netherlands study believed that those with addiction had control over it once it started [19]. However, drug addiction was rated as having higher controllability and possibility of recovery with treatment than other psychiatric diagnoses and health conditions (including AIDS and cancer) [23]. Illicit drug addictions were ranked as being more difficult to change *without treatment* when compared to smoking [24]. A more recently-published study identified addiction liability, or degree of addictiveness attributed to the SUD, as being best able to discriminate among stigmatizing judgements towards SUDs, which may underlie conceptions that SUDs are unlikely to change in the absence of treatment [25*].

Treatment Prognosis—In the two U.K. studies in 1998 and 2003, 45-52% of respondents believed that individuals with alcohol or drug addiction can “pull themselves together” without treatment [7, 16]. When compared with other psychiatric diagnoses, the percentage

of respondents endorsing negative statements about treatability (i.e. would not improve with treatment) was generally less (11%) for drug and alcohol addiction [7, 16], with one contradictory finding [18*]. Despite these mixed findings, the majority of respondents consistently rated individuals with drug and alcohol addictions as able to recover [12, 16, 23]. Respondents were equally likely to endorse psychological, medical or integrated treatment, due to perceptions that addiction has a heterogeneous etiology [15*].

Immorality—One study from the U.K. [18*] reported that individuals addicted to heroin were perceived as more immoral than those with depression, diabetes or schizophrenia, but less immoral than individuals committing theft or fraud [18*].

General Emotional reactions

Seven studies assessed emotional reactions towards individuals with SUDs [12, 19-21, 23, 26, 27], including fear, anger, and pity. Studies showed mixed emotional responses to individuals with SUDs. In the Netherlands [19] most respondents (78.4%) reported pity towards individuals with alcohol or drug addiction, but >50% of respondents also endorsed anger and fear. Two additional studies indicated feelings of low “warmth” towards illegal injection drug users [26, 27]. In another study, those with drug addictions were viewed with greater fear than individuals with a physical disorder or other psychiatric diagnosis [12], with cocaine addiction eliciting the lowest levels of pity [23]. Sorsdahl (2012) found that respondents held a similar degree of negative feelings (i.e. fear, anger) towards a hypothetical character who used either alcohol, cannabis, methamphetamine or heroin [20]. Underlying these negative emotional responses may be beliefs that these behaviors are immoral. In a nationally-representative U.S. sample, >90% agreed “somewhat” or “strongly” that “injecting illegal drugs is just plain wrong”, and >70% agreed that injection drug users are “disgusting” and a “threat to society” [27].

Status loss and discrimination

In the seven studies [9, 12, 15*, 17, 19, 20, 22] that examined this public stigma domain, two forms of discrimination were addressed: *treatment coercion*, indicated by willingness to impose treatment, or policies that limit treatment opportunities such as financial reimbursement for treatment, and *imposing restrictions* indicated by willingness to restrict people with an addiction from taking on responsible roles in society. Across these studies, two other forms of discrimination were addressed: *desire for social distance*, i.e., unwillingness to interact with people with addiction, and *decreased intention to help*, or decreased feelings of benevolence, tolerance, and support toward community-based care for addictions.

Treatment coercion and imposing restrictions—Across four studies, the percentage of respondents who endorsed mandating coercive treatment for individuals using substances was generally high [9, 17, 19, 20]. Treatment coercion included (a) using legal means to force visits to a doctor or clinic; (b) imposing involuntary hospitalization; (c) forcing medication use and (d) willingness to use coercive measures. The most common types of treatment coercion endorsed by representative samples in the Netherlands and U.S. included forced visits to the clinic (67.3%) and involuntary hospitalization (up to 95.5% if posing a

public threat) [9, 19]. Social restrictions, or prohibition from assuming roles with responsibilities, include excluding individuals from taking public office, caring for children or obtaining a driver's license, were endorsed by 57%-65% of respondents [19]. Research is mixed, however, concerning whether individuals with SUDs face more social restriction when compared with persons with other psychiatric diagnoses [9, 17]. Important mechanisms for predicting willingness to impose social restrictions and treatment coercion include perceived aggressiveness of the addicted individual, perceived level of responsibility for the addiction, and feelings of anger towards people with SUDs [19].

Social distance and decreased intention to help—In three studies, social distance was endorsed to a greater degree towards individuals with SUDs than with other psychiatric disorders, including schizophrenia and depression [15*, 17, 22]. Increased levels of social distance were predicted if respondents: (a) classified stress-related and behavior-related conditions as psychiatric (b) held increased perceptions of dangerousness of people with SUDs, and (c) were themselves at high-risk for developing a SUD [15*, 17, 22]. Notably, and contrasting findings with people with other psychiatric disorders, increased familiarity with substance users was associated with increased avoidance, and decreased intention to help [22]. Lastly, endorsement of stereotypes predicted decreased intention to help and increased social distance towards people with SUD versus other mental illnesses [12]

Discussion

As shown in the 20 studies reviewed, the public holds very stigmatizing views towards SUDs. Individuals with SUDs were likely to be seen as dangerous and unpredictable, unable to make decisions about treatment or finances, and to be blamed for their own condition. Heightened stereotyping can lead to negative emotional reactions, consistent with the reactions seen towards individuals with SUDs, e.g., pity, anger, fear, and a desire for social distance. Highly negative stereotyping can also lead to discrimination, consistent with the high willingness of participants to force treatment on individuals with SUDs, and restrict such individuals from responsible societal roles. Overall, stigmatizing reactions to SUDs were stronger than towards other psychiatric disorders.

Negative albeit contradictory attitudes were expressed about the controllability of SUDs. Individuals were largely blamed for having the disorder. However, few participants in one study thought those with addiction had control over it once it started [19], while about half in another study thought those with SUDs could “pull themselves together” without treatment, implying control over the condition [16]. Reasons for such inconsistencies are unclear. Neither of these studies were conducted in the U.S., so U.S. information on this is lacking.

To our knowledge, no study examined attitudes towards stages of SUDs, i.e., experimental use, regular use, and progression to mild, moderate or severe disorders. Understanding the stage at which attitudes become stigmatizing, and individual characteristics that predict this, would fill a gap in knowledge.

Whether intersectionality of stigmatized conditions has influenced the stigma of SUDs requires further examination. African-Americans in the U.S. have been highly stigmatized and subject to discrimination [28]. For many years, addiction to opioids was seen as a condition largely affecting these disadvantaged minorities [29], and addiction treatment was not a high priority for most policymakers. However, in recent years, addiction to opioids (prescription and heroin) has spread to white population subgroups [30], and the public and politicians have been vocal in demanding appropriate treatments. Thus, some stigma associated with SUDs could be due to participant assumptions about the race/ethnicity of drug addicted populations. Directly addressing whether such intersectionality affects stigma towards those with SUDs could be examined in a vignette study describing a person with a SUD in which the race/ethnic identity of the person was varied and randomly assigned to participants.

Stigma can reduce willingness of policy-makers to allocate financial resources to alleviate a problem, such as insurance reimbursement for substance abuse treatment. In recent years, a strong effort was mounted to add parity of SUD treatment to insurance policies, which was eventually successful. An unknown question is whether consistent insurance coverage of SUD treatments, including in the U.S. Affordable Care Act (ACA) will have any role in decreasing the stigma of SUDs, assuming that the ACA and this provision survive. Of particular salience, due to the gatekeeping role that health professionals play in accessing health services, negative perceptions of persons with substance use disorders among health professionals can also reduce their willingness to treat SUDs [31-33], representing a distinct challenge in improving the care of substance abusers in different treatment settings. Additionally, our review of survey data might be usefully supplemented by a review of qualitative research that elucidates how perceptions of stigma towards SUDs are initially formed, and then reinforced. Such qualitative approaches may help us understand distinct features of stigma towards SUDs, e.g., why increased familiarity with SUDs is associated with increased stigma towards such groups, by observing if stigma among community respondents forms and increases as encounters with individuals with SUDs increase.

Conclusion

Most studies reviewed above were conducted many years ago. However, the prevalence of substance use and SUDs has increased substantially in U.S. adults, including alcohol disorders, drug disorders generally, and cannabis and heroin use disorders [1, 3, 4, 11, 30, 34]. Over the same period, the perceived harm of cannabis use has decreased dramatically [35], and 28 states have legalized medical and/or recreational cannabis use. Whether these national trends are influencing the stigmatization of individuals with SUDs is unknown. A common, yet to date untested, assumption about stigma is that it keeps individuals with SUDs from seeking treatment. Such information would be highly relevant to designing interventions that encourage individuals with untreated SUDs to seek treatment. Evidence-based behavioral and pharmacologic treatments exist, and entering treatment earlier in the course of a SUD could avoid or alleviate considerable distress, impairment and reduced life chances.

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Key Points

- Studies consistently show that the public holds highly stigmatizing attitudes towards substance use disorders.
- Stigmatizing attitudes towards substance abusers include perceiving them as dangerous, unpredictable, unable to make decisions, to blame for their own conditions, and a willingness to coerce treatment and maintain social distance.
- Evidence-based programs that can reduce societal-level stigma towards those with substance use disorders are needed.

Table 1

Summary of included studies

		Study				Participants			Stigma Outcomes	
Author, year, [ref.]	Design: Setting	Year data collected	Substance use Assessed	Inclusion: (sampling type)	sample size	Stigma Domain(s)	Outcome measures			
Crisp <i>et al.</i> 2005 [7]	Cross-sectional: U.K.	2003	Alcoholism and drug addiction	A nationally representative sample of 3,000 addresses (100 addresses in each of 30 postal sectors) in Great Britain was drawn from the Post Code Address File of the Office for National Statistics: (Representative sample)	N=1,725	Stereotyping	(1) Questionnaire assessed perceptions of dangerousness, unpredictability, being difficult to talk with, having only themselves to blame, being able to pull themselves together, having a poor outcome and responding poorly to treatment towards individuals with drug addiction.			
Link <i>et al.</i> 1999 [8]	Experimental, Cross-sectional: U.S.A.	1996	Alcohol dependence & drug dependence (cocaine)	Data derived from the MacArthur Mental Health Module of the 1996 General Social Survey: Bi-annual survey to a nationwide, representative sample of adults living in non-institutionalized settings: (Representative sample)	N=1,444	Stereotyping	(1) Public Recognition of Vignettes as Representing Mental Illness (2) Public Perceptions of Causes, (3) Public Perceptions of Dangerousness (4) Attitudinal Social Distance			
Pescosolido <i>et al.</i> 1999 [9]	Experimental, Cross-sectional: U.S.A.	1995-1996	Alcohol dependence & drug dependence	Data derived from the MacArthur Mental Health Module of the 1996 General Social Survey: Bi-annual to a nationwide, representative sample of adults living in non-institutionalized settings: (Representative sample)	N=1,444	Stereotyping, Status loss and discrimination	Surveyed attitudes on (1) Ability to make treatment decisions; (2) Ability to make money management decisions; (3) Likelihood of violence towards others; (4) Likelihood of violence towards self; (5) Willingness to use legal means to enforce treatment coercion.			
Corrigan <i>et al.</i> 2009 [12]	Experimental, Cross-sectional: U.S.A.	2006	General drug abuse	Data collected via list-assisted random digit dialing techniques on a sampling frame consisting of the entire United States telephone population stratified to be representative of the U.S., English-speaking, adult population: (Representative sample)	N=815	Stereotyping, Status loss and discrimination	(1) Questionnaire assessed perceptions of blame, ability to overcome problems, whether character would receive help from community or be given assistance at work & whether they view the character as dangerous, frightening, or someone to avoid.			
Mannarini & Boffo 2015 [15]	Cross-sectional: Italy	Not stated	Alcohol and drug addictions	Psychology undergraduate students from the University of Padova: (University sample)	N=360	Stereotyping, Status loss and discrimination	(1) Community Attitudes to the Mentally Ill - assesses the acceptability of mental health services and mentally ill people in the social community (2) Opinions about Mental Illness- assesses 5 dimensions of attitudes towards mental illness: 1. Authoritarianism (view of patients as an inferior, threatening outgroup); 2. Benevolence (based on humanistic or religious grounds); 3. Mental Health Ideology (tenets of mental health professionals) 4. Social Restrictiveness (patients who are viewed as a threat to family and society); 5. Interpersonal etiology (particularly deprivation of parental love in childhood)			

Study				Participants			Stigma Outcomes	
Author, year, [ref.]	Design: Setting	Year data collected	Substance use Assessed	Inclusion: (sampling type)	sample size	Stigma Domain(s)	Outcome measures	
Crisp <i>et al.</i> , 2000 [16]	Cross-sectional survey: U.K.	1998	Alcoholism and drug addiction	A nationally representative sample chosen from households in postal sector regions stratified by region within Great Britain drawn from the Post Code Address File of the Office for National Statistics: (Representative sample).	N=1,737	Stereotyping	(3) Attribution Questionnaire-27 (Italian version)- assesses attitudes of perceived dangerousness and level of social distance toward a mentally ill person (4) Mental Disorders Causal Beliefs scale - assesses mental illness etiological beliefs such as biogenetic causes (e.g. heredity, brain injury) and psychosocial causes (e.g. traumatic childhood experiences, stress). (1) Questionnaire assessed perceptions of dangerousness, unpredictability, being difficult to talk with, having only themselves to blame, being able to pull themselves together, having a poor outcome and responding poorly to treatment towards individuals with drug addiction.	
Hengartner <i>et al.</i> , 2013 [17]	Experimental, Cross-sectional: Brazil	2010	Alcohol dependence & cocaine dependence	Computer-assisted telephone interviews conducted with general adult population of Brazil, via probability-proportional-to-size method based on 2002 Brazilian census: (Representative sample)	N=2,001	Stereotyping, Status loss and discrimination	(1) Adapted comprehensive stigma questionnaire - assessed substance use stereotypes (positive - 'creative', 'gifted', 'healthy' vs. negative - 'dangerous', 'unpredictable', 'abnormal' etc.), social distance (willingness to interact with a person with mental disorder), and discriminating beliefs (perceptions of general social restrictions towards person with mental disorder).	
Mushtaq <i>et al.</i> , 2015 [18]	Cross-sectional: U.K.	Not stated.	Heroin dependence	Surveys posted to representative panel of 400 members of U.K. general public: (Representative sample)	N=106	Stereotyping	(1) Five short self-completion questionnaires were devised to assess public perception of mentally ill people regarding contagion, blameworthiness, dangerousness, treatability, and immorality.	
van Boekel <i>et al.</i> , 2013 [19]	Cross-sectional: Netherlands	2012	Alcohol addiction or illicit drug use	Data collected among existing panel (Longitudinal Internet Studies for Social Sciences, LISS) established in co-operation with Statistic Netherlands and a random sample was drawn of 10,150 addresses, using a random 10 % sample of the population registers each year: (Representative sample)	N=2,793	Stereotyping; General Emotional Reactions; Status loss and discrimination	(1) Attributional beliefs - adapted items from the Attributional Questionnaire: assesses perceived level of controllability and responsibility of addiction, as well as perceived level of dangerousness/ aggressiveness of substance users. (2) Emotional response- assesses level of fear, anger and pity towards substance users (3) Discriminatory intentions - assesses whether participants generally impose restrictions on persons with addiction.	
Sorsdahl <i>et al.</i> , 2012 [20]	Cross-sectional: South Africa	Not Stated	Alcohol, cannabis, methamphetamine or heroin use	Data obtained through street intercept collection procedures among general adult South African, public: (Convenience sample)	N=868	Stereotyping; General Emotional Reactions; Status loss and discrimination	(1) Attribution questionnaire (short form) - assesses stereotypes about people with mental illness (including Substance Use Disorder).	

Study			Participants		Stigma Outcomes		
Author, year, [ref.]	Design: Setting	Year data collected	Substance use Assessed	Inclusion: (sampling type)	sample size	Stigma Domain(s)	Outcome measures
Sorsdahl & Stein 2010 [21]	Cross-sectional: South Africa	Not stated	General substance abuse	Data obtained through street intercept collection procedures among general adult South African public: (Convenience sample)	N=1,081	Stereotyping: General Emotional Reactions	Stereotypes include blame, anger, pity, help, dangerousness, fear, avoidance, segregation, and coercion. (1) Attribution questionnaire (short form) – assesses stereotypes about people with mental illness (including Substance Use Disorder). Stereotypes include blame, anger, pity, help, dangerousness, fear, avoidance, segregation, and coercion.
Marie & Miles 2008 [22]	Cross-sectional: New Zealand	Not stated	Alcohol abuse and general substance dependence	Study 1- Six hundred individuals were randomly selected from the New Zealand Maori and General Electoral Rolls, resulting in 435 responses: (Representative sample)	Study 1 N=435; Study 2 N=101	Status loss and discrimination	(1) Perceived Dangerousness Scale- Assesses Beliefs about the perceived dangerousness of the vignette characters were assessed by asking participants to rate, on a 7-point Likert scale (<i>Administered in Study 2 only</i>)
				Study 2- One hundred and four individuals were recruited from the University of Canterbury campus, resulting in 101 responses: (University sample).			(2) Social distance measure - assesses participants' willingness to engage in 11 types of relationship with someone who behaved like the target character described in the vignette.
Crespo <i>et al.</i> 2008 [23]	Cross-sectional: Madrid, Spain	2005	Cocaine addiction	Data collected via quota sampling procedure from adults in Madrid, Spain. Participants were recruited by students of Psychology and Occupational Therapy from the University of Madrid, who randomly distributed the survey around their place of residence in the community of Madrid to individuals between 18 and 65 years old: (Representative sample)	N=439	Stereotyping: General Emotional Reactions	(1) Attribution questionnaire-27- assesses a series of constructs that explain attitudes, affect, behaviors related to a hypothetical person with a mental illness. The factors included are: responsibility for the mental illness, pity, anger, dangerousness, fear, help, coercion, segregation, and avoidance. (2) Level of familiarity with mental illness - assesses familiarity or contact the respondent has with mental illness. (3) Family stigma questionnaire - assess the stigma towards these family members of individuals with mental illness. The constructs included in this model were: blame for the onset and the offset, incompetence, contamination, shame, pity, and social avoidance. (4) Psychiatric disability attribution questionnaire - assesses stigmatizing attitudes including attributions about the stability and controllability of the illness, and the pity aroused by it.
							(1) Questions involved the risks of getting hooked, responsibility issues, and the possibilities of recovery, of various addictive substances and behaviors. Personal experience
Koski-Jannes <i>et al.</i> 2012 [24]	Cross-sectional: Finland	2007	Smoking, alcohol, cannabis, prescription drugs, hard drugs (mind-altering)	Data collected from survey mailed to a random sample of the general public of Finland between 17 and 74 years old. A second round of survey was sent three weeks later: (Representative sample)	N=1338	Stereotyping	

Study			Participants		Stigma Outcomes		
Author, year, [ref.]	Design: Setting	Year data collected	Substance use Assessed	Inclusion: (sampling type)	sample size	Stigma Domain(s)	Outcome measures
Thege <i>et al.</i> 2015 [25]	Cross-sectional: Alberta, Canada	2009	Alcohol, tobacco, marijuana, and cocaine problems	Adults recruited from an online research panel (Ipsos Canadian Online Panel) from Alberta Canada, aged 18 years or older: (Representative sample)	N=4,000	Stereotyping	(1) Perceived addiction liability with these addictive substances and behaviors were also assessed.
Herek <i>et al.</i> 2003 [26]	Cross-sectional: U.S.A.	1998-1999	Injecting drug user	English-speaking adults (18 years) residing in households with telephones in the 48 contiguous states: (Representative sample)	N=1,335	General emotional reactions	(1) Feeling thermometers (ranging from 1 to 100)- Higher ratings indicate warmer, more favorable feelings toward injection drug users.
Capitanio & Herek 1999 [27]	Cross-sectional: U.S.A	1996-1997	Injecting drug user	Data derived from a national telephone survey of English-speaking adults (18 years) residing in households with telephones in the 48 contiguous states conducted by the staff of the Survey Research Center at the University of California, Berkeley: (Representative sample)	N=1,579	General emotional reactions	(1) Feeling thermometers (ranging from 0 to 100) - assesses how favorable or "warm" respondents felt towards members of various groups (higher scores indicate more favorable ratings)