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Substance Use Related Stigma: What we Know and the Way Forward

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Abstract

Aims—To conduct a systematic review of the literature investigating the relationship between stigma experienced by individuals who use drugs.

Methods—We conducted an online literature search and identified articles related to stigma among individuals who use drugs. Studies evaluating associations between stigma and socio-demographic variables and if applicable clinical and substance use variables are presented. In addition, recommendations for future research are provided.

Results—We identified 26 articles describing 28 studies evaluating stigma. The majorities of studies were published in the last 11 years and conducted in the U.S. Samples were relatively diverse: 41.7% of all participants who provided data identified as racial/ethnic minorities. The vast majority of the relationships between stigma and socio-demographic characteristics were included in only one or very few studies, which limits conclusions. The relationship between stigma and psychological well-being is the only consistent finding reported in the literature. Specifically, results suggest that stigma has a detrimental effect on psychological well-being among individuals who use drugs.

Conclusions—While this literature is expanding at a rapid pace, this review indicates several areas for future research and needed improvements in research methodology in this area. Specifically, lack of comprehensive description of sample characteristics, lack of construct identification and proper definition, a dearth of longitudinal studies and limited research describing relationships between stigma and substance use behavior are a few areas identified for further research.

Keywords

Literature review; Stigma; Substance use

Introduction

Prevalence and costs associated with substance use disorders (SUDs)

Substance use disorders (SUDs), operationalized in this manuscript as including individuals with alcohol abuse/dependence and drug abuse/dependence, pose a significant challenge to individuals directly affected, healthcare providers, and society as a whole. An estimated 22.5 million people or 9.4% of the US population experience problems with SUDs [1]. The personal toll and societal costs of SUDs are high. Specifically, unintentional drug overdose mortality rose by 68% between 1999 and 2004 [2]. In addition, hundreds of billions of dollars are spent each year to reduce influx of drugs, provide treatment, and deal with consequences of SUDs [3].

Despite this personal and societal burden, utilization of treatment for SUDs is fairly modest [4]. In fact, only 36% of participants with SUDs reported ever attending or seeking treatment [5,6]. Stigma is one proposed barrier to treatment utilization [7,8]. There is a significant social stigma associated with SUDs, which results in many people who use drugs not seeking the help they need [9]. In addition, stigma may not only be a barrier to seeking treatment, but can also prevent stigmatized individuals from disclosing their drug/alcohol use to their healthcare providers, thereby endangering their health [10].

Why focus on drug use stigma?

Thus far, much of the research on stigma has focused on mental illness and HIV related stigma. This may be related to greater acceptance of stigmatizing attitudes and behaviors towards those who use drugs [11] as substance use is a strongly moralized behavior in many societies [9,12]. Indeed, the moralization of alcohol and drug use is a commonality across many modern societies [13]. The increase in negative attitudes towards persons who use illicit drugs may be a result of increased criminalization of drug use [14,15]. In fact, the view of people who use drugs as deserving punitive treatment is reflected in the 2010 U.S. budgetary federal spending of 65% on interdiction and criminal sanctions compared to 35% on treatment, prevention, and research [3].

Not all substances are equally stigmatized. Some preliminary research suggests crack and IV drug users are the most stigmatized by both the general public and drug users themselves [16–18]. Individuals who use drugs are exposed to discrimination due to multiple stigmatized statuses besides their drug use such as poverty and race. However, preliminary research suggests discrimination due to drug use may have the greatest impact on their lives [19,20]. Specifically, there is support in the literature that stigmatization may have direct detrimental effects on mental and physiological health stemming from exposure to chronic stress including experience of discrimination [19–22].

It is unfortunate that there has been a dearth of research on drug use-related stigma compared to mental illness stigma, since stigma has been suggested to be a barrier to treatment seeking [23–25]. Regrettably, when they do seek help, people who use drugs may experience discrimination in the health care setting and receive lesser quality care [26].

Our aim is to contribute to the literature by providing a synthesis of the rapidly developing knowledge about stigma among individuals who use drugs as well as to offer ideas and directions for future development of this understudied but much needed area of scientific inquiry.

Definition of stigma

Although stigma literature within the addictive behaviors field is scarce, stigma researchers in the severe mental illness field have made significant progress and contributed to the literature in numerous ways [27,28]. Research on stigma is complex and multidisciplinary in nature [28]. Differences both between and within disciplines exist in stigma definitions, theoretical approaches to studying stigma, and types of stigma on which research has focused. In addition, what is considered a stigmatized behavior or condition varies from culture to culture and over time [29]. Thus, prior to reviewing the research on drug use-related stigma, it is first important to briefly review definitions and conceptualizations of stigma that have been prominent in the literature. Others [28,30,31] put forward a more detailed review of the theoretical models and assessment of mental illness stigma.

There is lack of consensus among stigma researchers regarding both the definition of the construct as well as the number of different types of stigma [28,32,33]. One of the earliest writings about stigma comes from Ervin Goffman [34]. Goffman's book entitled, "Stigma: Notes on the Management of a Spoiled Identity," was a significant factor that led to the development of interest about stigma among social science researchers [34]. He defined stigma as the dehumanization of the individual based on their social identity or participation in a negative or an undesirable social category [34]. In addition, stigmatized individuals may conduct themselves in a way that is consistent with the response they expect from others [34].

More recently, researchers have posited several types of stigma, including public, perceived, enacted, and self-stigma. *Public stigma* has been defined as the endorsement by the public of prejudice against a specific stigmatized group, which manifests in discrimination towards individuals belonging to that group [30]. *Perceived stigma* refers to a process whereby stigmatized individuals think that most people believe common negative stereotypes about individuals belonging to the same stigmatized category as they do [32]. *Enacted stigma*, in turn, has been described as a direct experience of discrimination and rejection from members of the larger society [17]. Finally, *self-stigma* has been defined as negative thoughts, feelings, and diminished self-image resulting from identification with the stigmatized group and anticipation of rejection from the larger society [35–37].

Methods

Overview and aims

In the present review, we focus on peer-reviewed published studies discussing the association between several kinds of stigma and substance use among individuals who use drugs. We are aware of two review articles focusing on stigma in this population. Livingston and colleagues [33], reviewed treatment outcome studies in which stigma among individuals

who use drugs was targeted through a clinical intervention. Schomerus and colleagues [38] targeted specifically public stigma of individuals with alcohol use disorders (AUDs) compared to those who suffer from other mental health conditions. The present review differs from these prior reviews in that the focus is on non-treatment studies, and on any form of stigma (i.e. self-stigma, public, perceived, or enacted) among individuals with both/ either AUDs and SUDs. We contribute to the literature by consolidating the knowledge base related to different forms of stigma, measurement of stigma, and how stigma relates to a variety of other constructs relevant to individuals who use drugs.

Our aims include: a) providing a working definition of various kinds of stigma affecting individuals with SUDs; b) reviewing existing literature; and c) suggesting future directions for research in this area.

Identification and selection of studies

Studies were identified for inclusion in the current review through a comprehensive search of Medline and PsychInfo using the following key terms alone and in combination, appearing either in the title or the abstract: stigma, shame, drug use, alcohol use, substance use disorders, and substance use. Reference lists of identified articles from this search were also reviewed for additional publications. Potential studies were evaluated for inclusion based on the following criteria: a) written in English; b) published in a peer-reviewed journal; c) focused on the association between substance use stigma (i.e. public, perceived, enacted and/or self-stigma) and at least one other variable of interest such as sociodemographic variables; d) reported original results; and e) used quantitative methodology. Given the preliminary stage of the research in this field, no restrictions were placed on publication year. However, given that our literature search was performed in November 2011, research reports published after that date, were not included in the present review. Please see Figure 1 for summary of the search procedure. The initial online search generated 564 articles that were reviewed for relevance. Of these, 483 titles were excluded primarily because they did not constitute primary research, did not focus on individuals with SUDs, or were duplicates. The remaining 81 articles were read in their entirety and 63 of these were excluded for failing to meet one or more of the four criteria mentioned above, resulting in 18 studies identified for inclusion. In addition, review of the reference sections of identified papers for relevant titles resulted in inclusion of 8 additional manuscripts. In total, we included 26 articles, summarized in Table 1. One study included three different samples reported separately, as indicated in the table. Thus, the current review reports on 28 different respondent samples from 26 total articles.

The organization of our review into three larger thematic categories described below was influenced by the methodology utilized by Sobell et al. [39]. Similarly to the present literature review, they conducted a systematic literature review featuring quantitative and descriptive methodology. Therefore, as did Sobell and colleagues [39], we evaluated all 28 studies according to the following criteria: a) study characteristics (summarized in Table 2): sample size, year published, recruitment method, study location, compensation method for respondents, data collection method, b) reporting respondent characteristics (summarized in Table 3): age, education, gender, occupation, ethnicity, employment status, marital status,

and diagnosis if applicable; and c) stigma-related variables (summarized in Table 4): stigma defined, type of stigma assessed, additional variables in relation to stigma measured, substance use related variables reported when applicable.

Results

Summary of study characteristics

As Table 2 indicates, 100% of studies reported sample size. It varied substantially across studies, ranging from 22 to 34,543 with mean sample size of 3,164 (SD= 9,112) and median sample size of 292. This variability can be partially explained by a large number (n=11) of epidemiological studies included in this review. As indicated in Table 2, 85.7% were published in the last 11 years. Therefore, although the first reports in this area were published in the early 1990s, this past decade spurred the largest amount of scientific contribution to the literature. In addition, 75% of articles described their recruitment method, with a majority of the studies recruited through advertisements, followed by the 'other' category (i.e. approaching drug users on the street and undergraduates recruited in one of their classes), followed by surveys and random digit dialing, and lastly followed by snowballing/chain referrals. All research reports included information about the location of data collection site, and the vast majorities (i.e. 78.6%) were conducted in the U.S. However, only about 43% of studies provided information regarding participant compensation. From studies that included this information, 75% indicated monetary compensation. The majority (i.e. 85.7%) of studies were based on self-report data.

Summary of respondent characteristics

Table 3 displays demographic characteristics reported for study participants. The majority of studies reported on demographic variables such as age, education, gender and race while relatively few included information on employment status, occupation, marital status, or diagnostic information for clinical samples. There is no single demographic variable that was reported on by all studies reviewed.

As Table 3 indicates, 85.7% of studies reported participants' age. Regarding participants' education, unfortunately, very few studies reported systematically and directly on the level of education (either years of education or highest level completed). As Table 3 shows, 75% of the studies reported some form of information about educational attainment. Based on this, we were able to conclude that 52% of participants had at least a high school education. Additionally, as Table 3 indicates, only 89.3% of the studies included information about participants' gender. Based on the information that we do have, a little over a half (53.5%) of participants were male, which indicates comparable gender representation. Most studies (67.9%) reported racial breakdown of their samples, and 62.3% of participants in these studies were White participants.

As noted previously, a small number of studies reported on employment status (i.e. 30%), marital status (i.e. 46.2%), occupation (i.e. 7.4%), and for clinical samples, relevant diagnostic information (i.e. 16.7%). Based on this limited information, 59.2% of participants were employed and 56.1% were single/never married. Similarly, from 6 eligible studies

based on clinical samples, in only one of them (22) did the authors report clinical diagnosis data for their sample. Specifically, the majority (58%) of that sample of participants received a diagnosis of non-affective psychotic disorder [22].

Summary of stigma related variables

Table 4 shows the number and percentages of studies reporting various stigma variables and other variables assessed in relation to stigma. As Table 4 indicates, 20 (71.4%) of research reports provided an operational definition of stigma(s). Public stigma was investigated in 13 studies (65%), followed by 11 studies looking at self-stigma (55%), 9 studies investigating perceived stigma (45%), and 5 focused on enacted stigma (25%). Some (n=10) research reports discussed more than one type of stigma. Given that it was part of the inclusion criteria for this review, 100% of the studies reported on at least one variable in relation to stigma.

Relationship between stigma and demographic variables—Stigma and Age:

Regarding age, results are mixed as one study [11] reported a positive relationship between stigma and age while another [40] reported the opposite. While both Ahern et al. [21] and Crisp et al. [40] looked at the same kind of stigma (i.e. public stigma), their populations were diverse as the former utilized Canadian adolescents while the latter focused on British adults.

Stigma and Education: Keyes et al. [41] reported that higher perceived stigma towards individuals who use alcohol was associated with lower levels of education. This was the only study reporting on this relationship.

Stigma and Marital Status: Keyes' et al. [41] results suggest that perceived stigma towards individuals who use alcohol may be higher among individuals previously married compared to those single/never married.

Stigma and Gender: This construct was investigated in four studies [11,41–43]. Adlaf et al. [11] reported no significant relationship between public stigma and gender while others [41–43] found different results. Specifically, Brown [43] reported women scored higher on two of three indicators of public stigma towards individuals who use drugs. Keyes et al. [41], on the other hand, reported men scored higher on perceived stigma towards individuals who use drugs. O'Connor et al. [42] too, reported a significant relationship between gender and stigma. Their results suggest that 'proness to shame' (conceptually similar to self-stigma) was higher among women who use drugs than among men who use drugs.

In summary, albeit showing a significant relationship between stigma and gender, all three research reports assessed different kind of stigma (i.e. public, perceived, and self-stigma). In addition, in most cases, researchers investigating gender and stigma utilized revised stigma measures from severe mental illness literature. This highlights the need for future work in measurement development specific to substance use stigma.

Stigma and Race/ethnicity: This construct was investigated in five studies [19,41,44–46]. Capitano and Herek [44] looked at the level of public stigma of IV drug users among their

Caucasian and African American participants. Caucasian participants held more negative views of IV drug users than their African American counterparts. However, the researchers did not report whether these differences were statistically significant. Fortney et al. [45] reported that African American participants were less likely than Caucasian participants to endorse perceived stigma towards individuals who use alcohol. In contrast, Keyes et al. [41] found higher perceived stigma towards individuals who use alcohol was associated with non-White ethnic/racial status. Minior et al. [19], assessed level of enacted and perceived-stigma among African-American and Latino individuals who use drugs. They found that while African-American participants reported higher levels of enacted stigma, Latino participants reported more self-stigma. Lastly, Semple et al. [46] indicated that among individuals who use alcohol perceived stigma scores were highest among Latinos and Asians, followed by African-Americans, and lowest for Native Americans and Whites.

In summary, a majority of studies investigating the relationship between stigma and race focused on perceived stigma towards individuals who use drugs. Two of the studies [41,46] suggested Caucasian individuals report less perceived stigma than others. However, results from other studies [44,45] suggest the opposite relationship. Given mixed findings, more research is needed to arrive at firm conclusions. Further, though the construct under the investigation was the same for most studies in this area, the assessment instruments were not uniform and often adapted from studies looking at severe mental illness stigma. Therefore, it is possible that mixed results may be partially due to lack of valid, consistent, and psychometrically sound measures.

Relationship between stigma and substance use related variables—Regarding substance use related variables, out of 14 studies based on samples of individuals who use drugs, only 4 studies [47,48] looked at the relationship between indicators of substance use (severity, problems, quantity or frequency of use) and stigma. In one study [47], authors reported on the relationship between alcohol severity and drug use severity scores and self-stigma among three different samples of participants (i.e. two independent samples of college students and a sample of jail inmates). In all three samples, Dearing and colleagues [47] found a significant and positive relationship between alcohol severity and self-stigma. Regarding the relationship between drug severity and self-stigma, they reported that for one sample of college students the relationship didn't reach significance while for a sample of jail inmates and another sample of college students, there was a significant positive relationship [47]. Only one study reported on the relationship between stigma and drug/alcohol use frequency and drug/alcohol problems. This study was conducted among jail inmates, and results suggested a significant positive relationship between self-stigma and cocaine and polydrug use frequency, alcohol and drug-related problems, and cocaine and alcohol dependence diagnosis. In addition, only one study [48] investigated the relationship between stigma and whether an individual is an active drug/alcohol user or in recovery. They reported that public stigma was higher for both active alcohol and opiate users than for either opiate or alcohol users in recovery.

Based on these preliminary results, self-stigma may be positively related to drug use frequency and alcohol/drug use severity. Additional research is needed to replicate and

extend these findings as well as to understand longitudinal relationships among these constructs.

Relationship between stigma and IV drug use—As Table 4 shows, three (15.4%) studies reported on the association between IV drug use and stigma [49–51]. Chan et al. [49] compared the level of stigmatizing attitudes held by nursing students towards individuals diagnosed with HIV/AIDS, IV drug users, and commercial sex workers. Their results show the most stigma associated with IV drug use. Similarly, Decety and colleagues [50] assessed public stigma among healthcare providers for individuals diagnosed with AIDS either through blood transfusion or as a result of IV drug use. They reported that individuals with IV drug use were seen as more responsible for their condition and experiencing less pain than those who received the AIDS diagnosis as a result of blood transfusion. Lastly, Latkin et al. [51] assessed IV drug use risk behaviors frequency (i.e. sharing needles, cookers, cotton filters, and using pre-filled syringes, etc.) and both perceived and self-stigma among individuals who use drugs. They found a positive significant relationship between both self and perceived stigma and all high risk behaviors.

Relationship between stigma and previous contact with someone who uses drugs—Three studies (11.5%) reported on this relationship [11,40,41]. Adlaf et al. [11] found that among college students, those who have at least 50% of friends who use drugs, scored lower on the measure of public stigma towards individuals who use drugs. Crisp et al. [40] assessed public stigma of individuals diagnosed with mental illness such as alcohol/drug problems, depression, and schizophrenia. Previous contact with someone with mental illness didn't correlate with less stigmatizing attitudes. However, their investigation did not focus specifically on individuals who use drugs nor did they assess previous contact with those individuals specifically. Instead, they looked at different mental illness problems of which alcohol and drug disorders were two. Lastly, Keyes et al. [41] reported less public stigma towards individuals who use alcohol among participants who had a family member diagnosed with AUD than among those who did not.

Relationship between stigma and type of label used to describe an individual who uses drugs—Kelly et al. [52] assessed clinicians working with individuals who use drugs attending professional conference. They reported on the impact that a label ('a substance abuser' vs. 'having a substance use disorder') used to describe someone who uses drugs would have on the level of public stigma towards that individual. While they didn't find a significant difference between two groups on the 'social threat' subscale, those labeled as 'substance abusers' were more likely to be seen as personally responsible for their condition and deserving more punitive treatment than those labeled as 'someone who has SUD.'

Relationship between stigma and kind of substance used—Two studies (11.5%) looked at this relationship [40,53]. Crisp et al. [40] reported on the level of public stigma among individuals diagnosed with depression, schizophrenia, alcohol dependence, drug dependence, and other mental health conditions. Individuals with drug dependence were ranked the highest for danger to others, unpredictable, hard to talk to, and having themselves

to blame. Their results indirectly suggest then, that those with alcohol dependence, while more looked down upon than other subgroups of participants, were less stigmatized than individuals with drug dependence. Cunningham and colleagues [53] assessed the level of public stigma towards individuals with alcohol dependence, cocaine dependence or tobacco dependence. Among study participants, stigma was the lowest towards those with tobacco dependence and higher for both those with alcohol and cocaine dependence. They did not find a significant difference on public stigma between those with alcohol or cocaine dependence diagnoses.

In summary, it appears that there may be a protective factor of knowing someone who uses drugs on reported stigma towards those individuals. In addition, albeit very preliminary, these results suggest a positive relationship between public stigma and IV drug use as well as self-stigma and perceived stigma and IV drug use risk behaviors among individuals who use drugs. Moreover, researchers reported preliminary findings indicating a complex relationship between public stigma and kind of substance used [40,53]. Data seems to suggest that alcohol/drug use is more stigmatized than other mental health conditions but results regarding differences in public stigma between alcohol and other drug use (i.e. cocaine) are mixed.

Relationship between stigma and mental and physical health—As shown in Table 4, while 19.2% of studies assessed the relationship between stigma and mental health [21,22,38,50,54], only one study did the same for physical health [21]. Specifically, among individuals who use drugs, enacted [21,22], self [21,22,50], and perceived [38,54] stigma are positively related to symptoms of depression and anxiety while negatively related to overall psychological well-being. Only Ahern et al. [21] reported that the relationship between perceived stigma and measures of psychological well-being was not significant. Albeit preliminary, findings regarding the relationship between stigma and psychological functioning are relatively consistent. Specifically, among individuals who use drugs, enacted, self, and perceived stigma, are positively related to symptoms of depression and anxiety while negatively related to overall psychological well-being. This is a noteworthy conclusion given such an early stage of the stigma literature. It is also encouraging because the vast majority of the studies in this section used either well established measures or did an excellent job at providing information and psychometric properties of newer/adapted measures used.

Relationship between stigma and social support, self-esteem, and self-efficacy—Table 4 indicates that only in one study each did the researchers look at the relationship between stigma and perceived social support, self-esteem [54] or self-efficacy [55]. Luoma and colleagues [54] reported on the relationship between perceived stigma and both self-esteem and perceived social support among individuals who use drugs, and they did not find significant correlations between these variables. Schomerus et al. [55] found that among individuals who drink alcohol, self-stigma was negatively correlated with drinking refusal self-efficacy.

Relationship between stigma and treatment history—Two studies [41,56] discussed this relationship. Keyes et al. [41] reported that among individuals who use

alcohol, those with higher level of perceived public stigma towards individuals who use drugs were less likely to have a history of past year treatment utilization. Semple and colleagues [56] investigated the relationship between enacted and perceived stigma among methamphetamine users and treatment utilization. They reported that enacted stigma was positively associated with treatment history while there was not a significant relationship between perceived stigma and treatment history.

Relationship between drug use stigma and mental illness stigma—Lastly, three (11.5%) studies [57–59] reported on the differences in public stigma towards individuals who use drugs as opposed to those with other mental conditions. In the first study, Corrigan and colleagues [57] asked their participants to complete a measure of public stigma and rate individuals from the following groups: cocaine addiction, mentally retarded, living with AIDS, diagnosed with psychotic disorder, diagnosed with depression, and diagnosed with cancer on the following attributes: controllability (blame for problems and deserving pity) and stability (can benefit from treatment). Their results suggest that on the controllability dimension, cocaine addiction was the highest, followed by psychotic disorder, AIDS, depression, mental retardation, and cancer. Regarding stability, mental retardation was viewed as the most stable, followed by cocaine addiction, AIDS, psychosis, cancer, and depression.

Additionally, Corrigan and colleagues [58] looked at public stigma among adolescents towards individuals who use alcohol versus those with other mental conditions or with leukemia. They asked their participants two rank members in the aforementioned categories on the following variables: responsibility, anger dangerousness, pity, help, fear, and avoidance. Corrigan et al. [58] provided a detailed description of the revised measure in their manuscript. They reported that individuals who use alcohol were ranked the highest on the responsibility, anger, fear, dangerousness, and avoidance while they were ranked the lowest on pity and help.

Finally, Corrigan and colleagues [59] assessed public stigma towards individuals who use drugs other psychiatric disorder, or those with a physical disorder that requires a wheelchair. Researchers used vignettes to assess dangerousness and other attributes of individuals with these three groups. Although not a standardized measure, vignettes were well described in the manuscript. Data suggested individuals who use drugs were seen as more dangerous and to be avoided more than either those with mental illness or in a wheelchair. In addition, individuals who use drugs were seen as significantly more responsible for their disorder, and least worthy of help but more able to overcome their condition than either those with mental illness or in a wheelchair.

In summary, all studies investigating whether individuals who use drugs suffer from more severe stigma than those with other mental/physical disabilities consistently show that public stigma is highest towards the former group. All of the studies in this section were conducted by Corrigan and colleagues and were strong methodologically as they used psychometrically sound and appropriate stigma assessments.

Discussion

The current review of the literature demonstrates that research on stigma in the context of SUDs is rapidly expanding, as the majority of published research in this area has emerged in the past decade. Despite these recent advances in the field, we identified several gaps in the literature. Suggestions for future research to address these gaps are discussed below.

Our review uncovered only one research report that was longitudinal in nature, and as such we recommend that future work move towards investigating stigma associated with substance use over time. While cross-sectional data provides useful information, it lacks the richness afforded by longitudinal studies. Specifically, more longitudinal data would provide knowledge about temporal relationships between stigma and alcohol/drug use, about the nature of the relationship between stigma and substance use over time, and about the nature/strength of the relationship between stigma and other relevant variables of interest. Furthermore, such longitudinal data could permit us to begin to understand causes and effects of substance use related stigma.

We were surprised that the number of studies that defined the aspect of stigma to be studied was not closer to 100%, given that stigma is a complex concept with many facets to investigate. With some exceptions, most studies provided a sufficiently detailed description of assessment materials to allow the reader to reasonably ascertain which specific stigma was the focus of the investigation based on the measures used. It is nonetheless imperative that researchers provide a working definition of the construct they are measuring. This allows the reader to follow presented material by 'being on the same page' with the authors of the study. Additionally, social sciences are a very rich discipline where a variety of theories have been put forward to explain different phenomena. Having a working definition of the stigma construct under investigation would allow the reader to ascertain under which theoretical umbrella this conceptualization falls. That, in turn, will allow for a more thorough and more critical consumption of the literature. Lack of a working definition of stigma adversely impacts the robustness of conclusions of literature reviews such as the current one, as well as prospective studies aimed at replication as both of these rely heavily on precise definitions of variables of interest.

Furthermore, given the high comorbidity between SUDs and other mental health problems, we are particularly troubled about the lack of diagnostic information for clinical samples of participants included in this review. There is a plethora of research documenting detrimental effects of stigma among individuals coping with mental illness (30–32), and it is vital to describe clinical characteristics of the patient population so the reader has a better opportunity to assess and replicate findings of such studies. A more conservative and prudent step would be to assess and if necessary, control for mental illness stigma among individuals who use drugs which would allow for more robust and more conclusive research findings in this literature.

To improve quality of research in this area, it will be important to first focus on elaborating on the construct under investigation and developing assessments that are psychometrically sound and appropriate for the population under investigation. Psychometric data and other

measurement information were sometimes poorly explained, and in most cases, stigma measures were adapted from the severe mental illness literature. Moreover, in addition to self-report measures, use of implicit assessments and other forms of measurement of the stigma construct would be beneficial to expand our understanding of this complicated construct.

Conclusions that can be drawn from this present review are limited due to inadequate reporting of demographic and descriptive statistics of study participants. Characteristics such as gender, race/ethnicity/age, etc. are imperative to a better understanding of the data presented and to moving the field forward. Thus, we encourage researchers to standardize the socio-demographics they report, and at a minimum, report all basic socio-demographic characteristics such as age, gender, race/ethnicity, occupation/employment status, marital status, and for clinical samples their primary diagnosis.

Most notably, the largest gap in the literature is the scarcity of indicators of substance use severity, frequency, etc., among studies based on drug using populations. Thus far, we have a very limited understanding of the relationship between substance use variables and stigma, and are not able to conclusively say whether that relationship is linear in nature, positive, negative, or in what order of temporal precedence the relationship between substance use and stigma occurs. These gaps in the literature provide opportunities for future research, and our field would benefit tremendously from investigations addressing them.

Conclusions

The vast majority of data presented in this review about the relationships between stigma and associated constructs was based on a very small number of studies, thus firm conclusions regarding these relationships would be premature. Despite this, our review had strengths in that it exposed gaps in the literature that can be opportunities for future research. In addition, given the small number of quantitative reports available for the present review, literature in this area would benefit from a review article focused on qualitative data.

Overall, stigma research, albeit underdeveloped in the aforementioned areas, has been receiving considerable attention in the recent past and will certainly continue to expand. Based on the literature we reviewed, a consistent pattern emerged about the harmful effects of stigma on psychological well-being of individuals who use drugs [21,22,38,54]. Based on these findings, it may be beneficial to consider addressing stigma among individuals seeking treatment for SUDs. In fact, not only has the need to address stigma in this population been noted by others [17,47], there is preliminary evidence that stigma may be modifiable through clinical intervention such as Acceptance and Commitment therapy [60].

Given that individuals who use drugs are often affected by more than one area in which they may be discriminated against or stigmatized, we would like to conclude this manuscript with a call for improving the scientific literature through heeding the suggestion put forward by Link and Phelan [61] in future scientific investigations. “We believe that under-recognition occurs because attempts to measure the impact of stigma have generally restricted analysis to one circumstance (i.e. AIDS, obesity, race or mental illness) and examined only one

outcome (i.e. earnings, self-esteem, housing, or social interactions). If all stigmatized conditions were considered together and all outcomes examined, we believe that stigma would be shown to have an enormous impact on people's lives [61]."

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Figure 1.
Summary of Search Procedure.

Table 1

Summary of Articles.

First author and year	Study aims	Participant characteristics	Measure of stigma	Summary of results
Adlaf, 2009 [11]	To evaluate the relationship between age and stigma towards individuals with SUDs	4078 adolescents (7 th to 12 th graders), Canadian students, predominantly male, who participated in the Ontario Student Drug Use Survey	Public stigma: modified version of social distance items (World Psychiatric Association, 1999)	Public stigma scores declined with age, $p<.001$.
Ahern, 2007 [21]	To examine the association between stigma and physical and mental health	1008 illicit drug users living in North East U.S. predominantly Black male	Enacted (discrimination), perceived (perceived devaluation), and self-stigma (alienation): modified measures for each, which wasn't specified.	Enacted stigma was associated with both poor mental ($\beta = -.61, p<.001$) and physical health ($\beta = -.59, p<.001$) while self-stigma was associated with poorer mental health ($\beta = -.59, p<.001$)
Brown, 2011 [43]	To develop public stigma measure assessing amount of stigma among general public towards individuals with SUDs.	565 undergraduate students from the U.S., predominantly Caucasian female	Public stigma: Social Distance Scale (SDS; Link et al., 1987), Dangerousness Scale (DS; Link et al., 1987), and Affect Scale (AS; Penn et al., 1994). Adapted from mental illness literature.	On SDS, women ($M=22.35, SD=3.52$) reported stigma than men ($M=21.97, SD=4.49$), $t(561)=3.29, p<.01$. On AS, women ($M=42.99, SD=11.06$) reported greater stigma than men ($M=38.98, SD=11.46$), $t(556)=3.94, p<.01$. No differences on DS, $p>.01$.
Capitano, 1999 [44]	To assess AIDS-related public stigma towards IV drug users	1442 adults living in the U.S. participating in the national telephone survey	Public stigma: no information about the measure provided.	Black ($r=.19$) and White ($r=.31$), $p<.001$ participants with negative attitudes towards IV drug users also held negative AIDS attitudes. For Black participants, knowing an IV drug user was related to less AIDS stigma ($\beta = -.21, p<.001$).
Chan, 2008 [49]	To assess the extent to which negative attitudes towards HIV/AIDS are related to stigma towards IV drug users and commercial sex workers.	144 nursing students in Thailand, predominantly female	Public stigma: adopted social distance scale (Kelly, 1987)	Significant association between AIDS ($\beta = 2.49, p<.05$), IV drug use ($\beta = 3.60, p<.01$) and stigma but not between commercial sex ($\beta = 1.24, p=ns$) and stigma. AIDS related stigma significantly less stigmatizing than IV use stigma ($\chi^2(1)=3.87, p<.05$).
Corrigan, 2000 [57]	To assess stigmatizing attributes among general public towards individuals from various stigmatizing conditions.	152 undergraduate students from the U.S. predominantly Caucasian females.	Public stigma: Psychiatric Disability Attribution Questionnaire (PDAQ; Weiner et al., 1988).	Cocaine dependent individuals ($M=9.2, SD=3.5$) seen as more responsible than those with psychotic disorder ($M=5.3, SD=2.5$), AIDS ($M=5.2, SD=3.0$), depression ($M=4.1, SD=2.5$), $p<.0001$
Corrigan, 2005 [58]	To validate adult-based models of stigma towards those with AUDs and mental illness in adolescent sample.	303 High School students from the U.S., predominantly Caucasian females.	Public stigma: modified version of the Attribution Questionnaire (AQ; Watson et al., 2004).	Participants perceived individuals with AUD as more responsible ($M=6.3, SD=2.5$) than individuals with other mental illness ($M=1.4, SD=1.1$) or leukemia ($M=1.3, SD=1.4$), $p<.001$.
Corrigan, 2009 [59]	To examine stigma towards individuals	815 adults residing in the U.S., predominantly Caucasian females	Public stigma: attribution and dangerousness	Individuals with SUDs stigmatized more than those with other psychiatric

First author and year	Study aims	Participant characteristics	Measure of stigma	Summary of results
	with SUDs and other psychiatric conditions		assessed. No reference provided for the measure.	conditions. They were viewed as: more dangerous $\chi^2(1)=66.8, p<.0001$), more responsible for their condition $\chi^2(1)=273.3, p<.0001$), and less likely to be offered help $\chi^2(1)=19.6, p<.0001$), than individuals with other psychiatric conditions.
Crisp, 2000 [40]	To examine the extent to which individuals with SUDs and other mental conditions are stigmatized	1737 adults living in the U.K., predominantly Caucasian females	Public stigma: measure not standardized, no reference.	More participants saw individuals with SUDs compared to those with depression as unpredictable (77.8% vs. 56.4%), dangerous (73.9% vs. 22.9%) and having themselves to blame for their condition (67.6% vs. 12.8%).
Cunningham, 1993 [53]	To assess how individuals abusing different drugs (i.e. alcohol, cocaine, tobacco) are viewed	579 adults living in Canada, predominantly female	Public stigma: measure not standardized, no reference.	Tobacco users ($M=16.2, SD=6.4$) were less stigmatized than either cocaine ($M=28.4, SD=5.0$) or alcohol users ($M=28.2, SD=4.6, F(2,531)=293.5, p<.001$).
Dearing, 2005 [47]	To assess the relationship between shame-proness and substance use variables.	235 college students living in the U.S., predominantly Caucasian females	Shame and guilt-proness: Test of Self-Conscious Affect (TOSCA; Tangney et al., 1989)	Shame-proness was significantly related to alcohol problems ($r=.21, p<.01$), but not related to drug problems ($r=.06, p=ns$).
Dearing, 2005 [47]	To assess the relationship between shame-proness and substance use variables.	249 college students living in the U.S., predominantly Caucasian females	Shame and guilt-proness: Test of Self-Conscious Affect (TOSCA; Tangney et al., 1989)	Shame-proness was significantly related to alcohol problems ($r=.15, p<.05$), and there was a trend for positive relation to drug problems ($r=.12, p=.06$).
Dearing, 2005 [47]	To assess the relationship between shame-proness and substance use variables	332 jail inmates from the U.S. predominantly male and Black.	Shame and guilt-proness: Test of Self-Conscious Affect (TOSCA; Tangney et al., 1989).	Positive correlations between shame-proness and drug ($r=.21, p<.001$) and alcohol problems ($r=.12, p<.05$).
Decety, 2009 [50]	To investigate the relationship between stigma, perceived responsibility for one's condition (infected with HIV as a result of blood transfusion vs. HIV positive patient who is an IV drug user), and perceptions of pain and empathy towards those individuals	22 adults residing in the U.S. All of them were Caucasian. No information about gender provided.	Indirect measures of public stigma: Attitudes towards HIV Scale (Green, 1995), Empathy Index (EI; Baston et al., 1987), Personal Distress Index (PDI; Baston et al., 1987), Implicit Association Test (IAT; Greenwald et al., 1998).	Blood transfusion HIV positive target, compared to IV drug use HIV target, was viewed as having more pain $t(21)=2.18, p<.05$. The more personal responsibility attributed to the target, the less empathy they received ($r=.39, p=.07$).
Fortney, 2004 [45]	To assess the extent of perceived stigma among at-risk drinkers.	733 'at risk' drinkers living in Southern U.S., predominantly Caucasian females.	Perceived stigma: measure not standardized, so no reference provided. Used adapted vignette from Rost et al. (1993).	The vast majority (i.e. 86%) of 'at risk' drinkers in this study endorsed high levels of perceived stigma among general public.

First author and year	Study aims	Participant characteristics	Measure of stigma	Summary of results
Kelly, 2009 [52]	To evaluate whether different labels towards individuals with SUDs (i.e. substance abuser, vs. 'having a SUD') would evoke different judgments.	516 clinicians attending addiction focused mental health conference in the U.S., predominantly female. No information available regarding ethnic background.	Public stigma: some questions, which weren't specified, were 'rationally derived,' while others were adapted from the Pescosolido et al (1996) study.	Referring to an individual as a 'substance abuser' ($M=2.92, SD=.58$) as opposed to 'having a SUD' ($M=2.82, SD=.57$) evoked opinions that such an individual deserved a more punitive treatment, $t(504)=2.05, p<.05$.
Keyes, 2010 [41]	To examine the extent of perceived stigma towards individuals with AUDs among general public.	34, 653 adults living in the U.S. participating in the National Epidemiologic Survey of Alcohol and related Conditions. No descriptives for the entire sample provided.	Perceived Stigma: modified version of the Perceived Devaluation-Discrimination Scale (PDDS; Link, 1987).	Individuals with AUDs who perceived high stigma among general public towards people with AUDs had lower odds of treatment utilization ($OR=.54, 95\% CI: .20, 1.5$).
Latkin, 2010 [51]	To examine the relationship between perceived stigma and HIV risk behaviors among current IV drug users.	851 males living in India, who are current IV drug users.	Perceived and self-stigma: developed their own measure and provided psychometrics in the paper.	Strong relationship between drug use stigma among IV drug users and HIV risk behaviors: sharing needles ($OR: 4.2, 95\% CI: 2.0, 7.4, p<.001$), sharing cookers ($OR: 2.6, 95\% CI: 1.9, 3.5, p<.001$); and using pre filled syringes ($OR: 5.4; 95\% CI: 2.9, 9.9, p<.001$).
Link, 1997 [22]	To examine whether stigma has an enduring effect on the well-being of individuals with SUDs.	84 men with comorbid SUDs and another DSM diagnosis, living in the U.S., and predominantly Black.	Perceived stigma: Devaluation and Discrimination Scale (DDS; Link, 1987). Enacted stigma: developed their own items and presented them in the appendix.	No significant change in either perceived ($M=2.72, SD=.4$ vs. $M=2.76, SD=.4$) or enacted stigma ($M=.46, SD=.27$ vs. $M=.42, SD=.26$) between baseline and f/u respectfully.
Luoma, 2010 [54]	To develop a measure of perceived stigma among individuals with SUDs.	252 individuals in treatment for SUDs living in the U.S., predominantly White males.	Enacted stigma: Stigma Related Interpersonal Rejection (SRIR; adapted from Wahl, 1999). Self-stigma: Internalized Shame Scale (ISS; Cook, 1996) and Internalized Stigma of Substance Abuse (ISSA; adapted from Risther et al., 2003). Perceived stigma: Perceived Stigma of Addiction Scale (PSAS; adapted from Link et al., 1997).	Their measure of perceived stigma was significantly associated with internalized stigma $r(111)=-.39, p<.00001$, enacted stigma $r(131)=.22, p<.05$, and depression $r(160)=.20, p<.05$.
Minor, 2003 [19]	To evaluate experiences of stigma and responses to such experiences among individuals with SUDs from the ethnic minority community.	919 current substance users residing in the U.S., predominantly male and almost evenly distributed between Black and Latino.	Enacted and self-stigma: develop their own questions and provided them in the text.	Discrimination due to drug use (47% and 55%), $p<.05$ for Black and Latino participants respectively was higher than discrimination due to race (9% and 4%), $p<.05$, and criminal status (11% and 10%), $p<.05$.
O'Connor, 1994 [42]	To examine differences in stigma and depression between men and women in recovery from SUDs.	130 adults in recovery from SUDs living in the U.S., predominantly Caucasian males.	Proness to shame: Test of Self-Conscious Affect (TOSCA; Tangney et al., 1989).	Women as compared to men respectively, reported significantly higher levels of stigma ($M=44.4, SD=10.23$ vs. $M=28.2, SD=9.01, p<.01$), and depression ($M=14.1$,

First author and year	Study aims	Participant characteristics	Measure of stigma	Summary of results
				$SD=8.8$ vs. $M=9.6$, $SD=8.6$, $p<.05$).
Rao, 2009 [48]	To examine stigma towards people with mental health problems and SUDs among health professionals.	108 healthcare workers living in the U.S. mostly Caucasian females	Public stigma: Attitude to Mental Illness Questionnaire (AMIQ; Luty et al., 2006)	Individuals with SUDs who are currently using drugs are seen more negatively than those who are currently in treatment, $p<.01$.
Ross, 2007 [10]	To evaluate the extent of stigma experienced by male commercial sex workers who use drugs.	90 male commercial sex workers and active drug users living in the U.S., predominantly Caucasian.	Self-stigma: Drug Use Stigma Consciousness Scale (DUSCS; adapted from Pinel, 1999). Perceived Stigma: Concerns Related to Drug Use Exposure (CRDUE; adapted from Pinel, 1999).	Drug use stigma was moderately correlated with concerns about being exposed as a drug user ($r=.3$, $p<.01$) but not related to concerns about exposure as a commercial sex worker ($r=.17$, $p=ns$) or as a homosexual ($r=.06$, $p=ns$).
Schomerus, 2011 [55]	To validate a new measure of self-stigma among individuals with AUDs.	121 individuals hospitalized for alcohol detoxification in Germany, predominantly male.	Self-stigma: Self-stigma in Alcohol Dependence (SSAD; Schomerus, 2011) with the following subscales: aware, agree, apply, and harm.	Self-stigma was positively related to: years of drinking problems (i.e. SSAD apply) ($\beta=.21$, $p<.01$) and depressive symptoms (i.e. SSAD apply and harm) ($\beta=.27$, $p<.001$). It was negatively related to drinking refusal self-efficacy ($\beta=-.34$, $p<.0001$).
Semple, 2005 [56]	To investigate the relationship between stigma and treatment seeking among methamphetamine users.	292 methamphetamine users living in the U.S., predominantly Caucasian males.	Enacted and perceived stigma: modified Link et al. (1997) measure.	Participants who have never been in treatment reported less expectations of rejection than those who had a treatment history 2.4 vs. 2.8, respectively , $t(2989)=3.7$, $p<.001$).
Smith, 2010 [50]	To examine ethnic differences in perceived stigma and its associations with treatment seeking and psychological functioning.	34,653 adults living in the U.S. and taking part in the National Epidemiologic Survey on Alcohol and Related Conditions, predominantly Caucasian. No information regarding gender was provided for the sample.	Perceived stigma: Perceived Devaluation-Discrimination Scale (PDDS; Link et al., 1982).	Stigma ($\beta=-.01$, $p=ns$) was not related to treatment utilization but it was negatively related to psychological functioning ($\beta=-.14$, $p<.0001$).

Table 2

Percentage of studies (N=28) reporting different study variables.

Variable	% (n) sample reporting
Sample size	100.0 (28)
Year Published	100.0 (28)
2000–2011	85.7 (24)
1990–1999	14.3 (4)
Recruitment method ^a	75.0 (21)
advertisements	28.6 (6)
snowballing/chain referrals	18.0 (4)
surveys	19.0 (4)
random digit dialing	19.0 (4)
other ^b	33.3 (7)
Study Location (Country)	100.0 (28)
U.S.	78.6 (22)
Canada	7.1 (2)
Europe	7.1 (2)
Asia	7.1 (2)
Compensation method for participants defined	42.9 (12)
Monetary Compensation	75.0 (9)
Course Credit	25.0 (3)
Data collection method ^a	100.0 (28)
self-report survey	85.7 (24)
interviews	14.3 (4)
other ^c	3.6 (1)

^a Multiple sources could be reported.^b Approaching drug users on the street, undergraduates recruited in one of their classes, approaching conference participants.^c fMRI.

Table 3

Respondent characteristics reported (N=28).

Variable	% (n) of respondent samples reporting	Mean (SD) or mean % across samples
Age	85.7 (24)	31.7 (4.9)
Education (categories)	75 (21)	52% HS or above
Gender	89.3 (25)	53.5% male
Occupation	7.4 (2)	22.9% students
Race	67.9 (19)	62.3% White
Employment status (excluded 8 student sample studies)	30 (6)	59.2% employed
Marital status (excluded 2 adolescent sample studies)	46.2 (12)	56.1% single/never married
Diagnosis (applicable to 6 clinical sample studies)	16.7 (1)	58% non-affective psychotic disorder

Table 4

Percentage of studies (N=28) reporting stigma-related variables.

Variable	% (n) sample reporting
Stigma Defined?	71.4% (20)
Type of stigma assessed ^a	
Public stigma	65% (13)
Self-stigma	55% (11)
Perceived stigma	45% (9)
Enacted stigma	25% (5)
Additional variables in relation to stigma assessed ^a	100.0 (26)
Demographic variables ^b	30.8% (8)
Substance use variables, if applicable ^c	28.6% (4)
Mental Health	19.2% (5)
Physical Health	3.8% (1)
Previous contact with someone with SUD	11.5% (3)
IV drug use	15.4% (4)
Kind of substance used	11.5% (3)
Substance use label ('substance abusers' versus 'someone who has SUD')	7.7% (1)
Self-esteem	3.8% (1)
Perceived social support	3.8% (1)
Self-efficacy	3.8% (1)
Treatment history	7.7% (2)
Mental Illness Stigma	11.5% (3)

^a Multiple variables could be reported.

^b Age, gender, education, ethnicity, employment and marital status.

^c For studies (N=14) utilizing samples of individuals with SUDs.