Stigma Toward Substance Dependence: Causes, Consequences, and Potential Interventions

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Abstract

Substance dependence is a prevalent and urgent public health problem. In 2021, 60 million Americans reported abusing alcohol within the month prior to being surveyed, and nearly 20 million Americans reported using illegal drugs (e.g., heroin) or prescription drugs (e.g., opioids) for nonmedical reasons in the year before. Drug-involved overdose rates have been steadily increasing over the past 20 years. This increase has been primarily driven by opioid and stimulant use. Despite its prevalence, drug dependence is one of the most stigmatized health conditions. Stigma has myriad negative consequences for its targets, including limiting their access to employment and housing, disrupting interpersonal relationships, harming physical and mental health, and reducing help-seeking. However, because research on stigma toward people with substance use disorders (SUDs) is relatively sparse compared with research on stigma toward other mental illnesses, the field lacks a comprehensive understanding of the causes and consequences of SUD stigma. Moreover, it remains unclear how, if at all, these factors differ from other types of mental illness stigma. The goal of this review is to take stock of the literature on SUD stigma, providing a clear set of foundational principles and a blueprint for future research and translational activity.

Substance dependence is an urgent and growing public health problem. In a recent national survey, 60 million Americans reported abusing alcohol within the month prior to the survey (Substance Abuse and Mental Health Services Administration [SAMHSA], 2023). Nearly 20 million Americans reported using illegal drugs (e.g., heroin) or using prescription drugs (e.g., opioids) for nonmedical reasons in the year before. Drug overdose rates have been steadily increasing over the past 20 years (National Institute on Drug Abuse [NIDA], 2023); see Figure 1. Between April 2020 and April 2021, drug-related deaths surpassed 100,000 for the first time (Centers for Disease Control and Prevention, 2023). This increase has been driven primarily by opioid and stimulant use (NIDA, 2023); see Figure 2. Although there are numerous effective evidence-based treatments for substance dependence (Ali et al., 2017; Chiesa & Serretti, 2014; Steinka-Fry et al., 2017), treatment seeking remains relatively low, particularly within the first few years of disorder onset (Blanco et al., 2015; Kessler

et al., 2001) and among underrepresented minority populations (Pinedo, 2020).

Stigma has been identified as fuel for substance dependence and for America's addiction crisis more broadly (Fogler, 2020). Stigma is one of the strongest predictors of treatment hesitancy and thus a key barrier to recovery (P. Corrigan et al., 2017; Crapanzano et al., 2019; Hammarlund et al., 2018). Stigma has a range of additional negative consequences, including limiting access to employment and housing, disrupting interpersonal relationships, harming physical and mental health, and reducing help-seeking (Frost, 2011; Link et al., 2001; Rüsch et al., 2005; Sickel et al., 2014). All of these serve to weaken ties to other individuals and social institutions and to simultaneously increase

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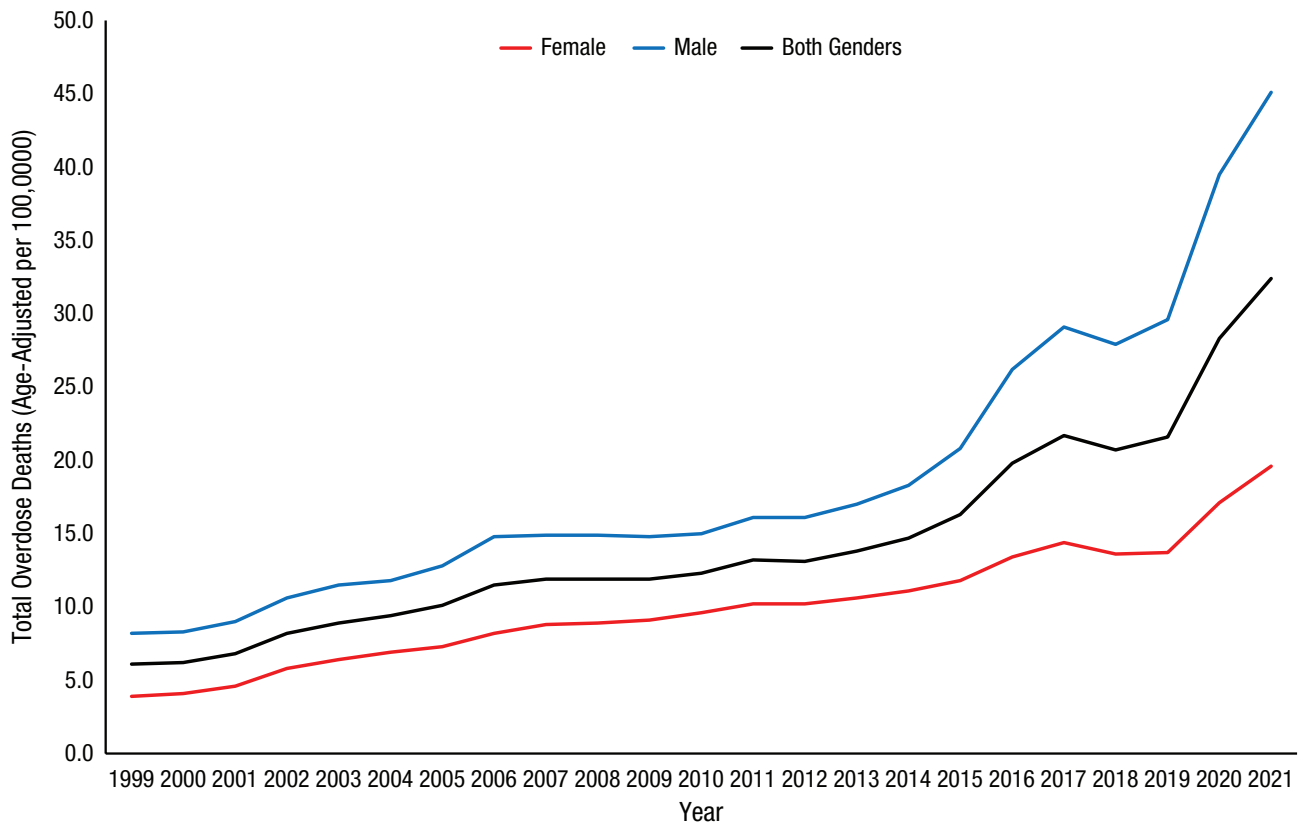Email: akrendl@indiana.edu

Fig. 1. Total number of overdose deaths in the United States from 1999 to 2021 by gender. Rates are collapsed across age groups, multiple substance types, and intentional, unintentional, and undetermined causes of death. Data were obtained from CDC WONDER (2023).

experiences of stress and trauma that exacerbate substance use.

Comparative studies suggest that substance dependence is one of the most stigmatized health conditions an individual can have (Hinshaw & Stier, 2008; Perry et al., 2020). However, research on stigma toward people with substance use disorders (SUDs) is relatively limited compared with the large, cross-disciplinary studies on mental illness stigma, which span the fields of psychology, sociology, and public health (Arnaez et al., 2020; P. Corrigan et al., 2017; P. W. Corrigan et al., 2014; Hammarlund et al., 2018; Pescosolido & Martin, 2015; Sickel et al., 2014). We lack a comprehensive understanding of the causes and consequences of SUD stigma and of how, if at all, it differs from other types of mental illness stigma (Barry et al., 2014; Schomerus et al., 2011). The goal of this review is to take stock of the literature on SUD stigma, providing a clear set of foundational principles and a blueprint for future research and translational activity.

Characterizing the nature and etiology of SUD stigma is critical for developing tailored and effective interventions to combat it. The first section of this review examines the consequences of stigma in several key domains

(i.e., self-perception, employment, interpersonal relationships, treatment). The next two sections consider two key drivers of stigma—beliefs about the stigmatized condition and the affective responses they elicit toward stigmatized individuals. The final section leverages existing research on mental illness stigma reduction to identify potential interventions that could reduce SUD stigma. We aim to provide a road map of what we know about SUD stigma, what remains to be studied, and what interventions might be effective in reducing this stigma.

Consequences of Stigma Toward SUD and Other Mental Illness

Stigmatization is a social psychological and sociological process that has four basic components: labeling, stereotyping, rejection, and discrimination (Link & Phelan, 2001; Pescosolido & Martin, 2015). These components exist on a continuum from relatively mild to very severe, with consequences that differ across distinct stigmatized conditions as well as social and cultural contexts (Link & Phelan, 2001; Pescosolido & Martin, 2015). Stigmatization is perpetuated by power dynamics; some
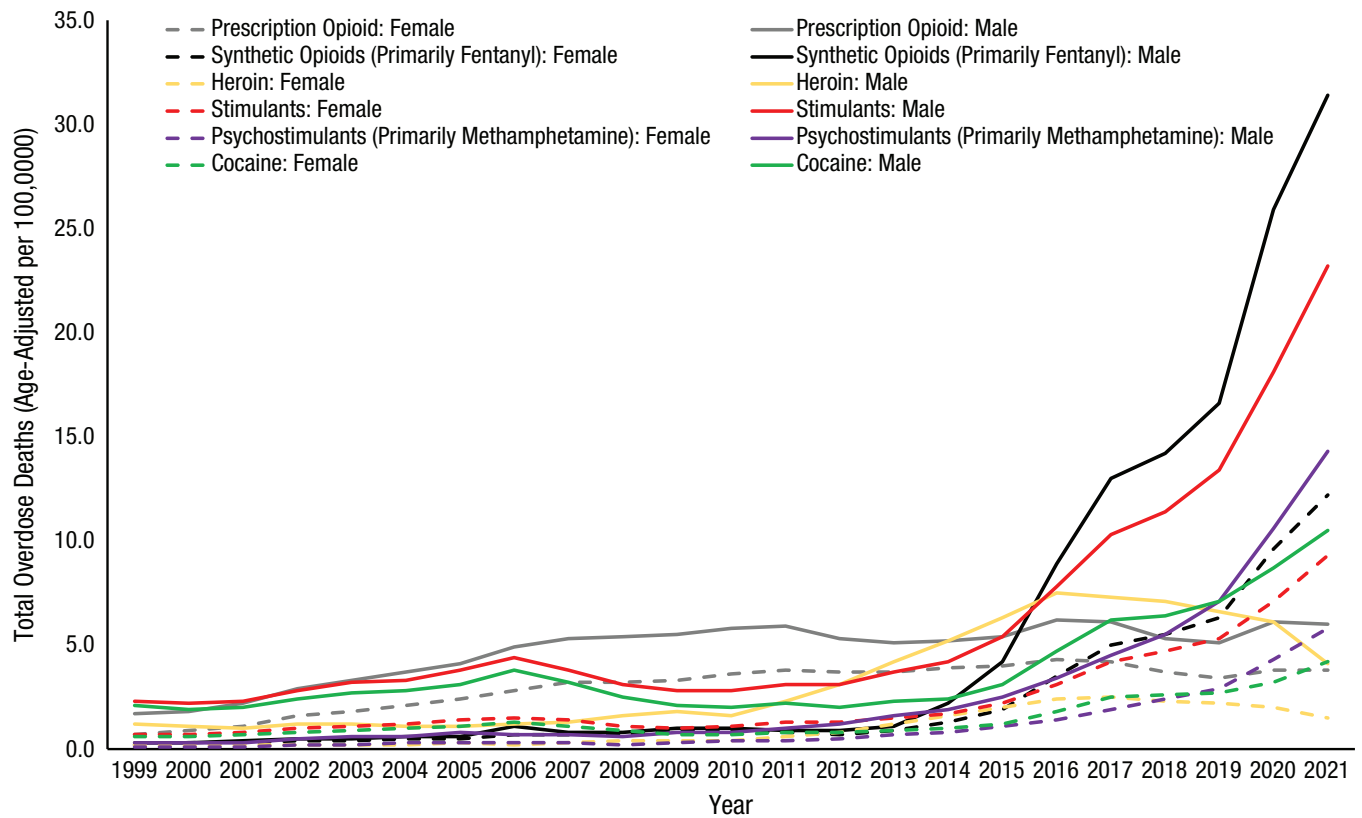
Fig. 2. Total number of overdose deaths in the United States from 1999 to 2021 by substance type and gender. Rates are collapsed across age groups and intentional, unintentional, and undetermined causes of death. Data were obtained from CDC WONDER (2023).

scholars argue that it serves as a means of exploiting and dominating specific individuals or groups (Phelan et al., 2008), and others suggest that it preserves existing social structures (Jost & Banaji, 1994). These motivations may differ across conditions and communities and are reflected in individual and system levels of stigma.

Mental illness and SUD stigma are generally measured along three key dimensions: *public stigma* (i.e., negative beliefs that members of society attribute toward stigmatized individuals), *self-stigma* (i.e., negative beliefs that individuals with a stigmatized condition attribute to themselves), and *structural stigma* (i.e., systemic rules, policies, and practices that constrain opportunities and resources of a stigmatized group; Brown et al., 2015; Campbell & Deacon, 2006; P. W. Corrigan et al., 2004; Hatzenbuehler, 2016; Livingston & Boyd, 2010; Sheehan et al., 2017). These three kinds of stigma likely interact and influence one another in various ways (P. W. Corrigan & Wassel, 2008; Vogel et al., 2010), although the full scope of these interconnections remains to be determined. At the most basic level, public and structural stigma contribute to the individual- and system-level power dynamics of mental illness and SUD stigma.

Stigma has effects across myriad domains, including self-perception, interpersonal relationships, employment and housing, health and health care, and help-seeking. These adverse outcomes occur through multiple pathways, creating barriers associated with self-, public, and structural stigmas. When a person is labeled with SUD (whether by laypersons or professionals or via self-diagnosis), the negative beliefs associated with these conditions become relevant to the self and may be internalized (i.e., self-stigma). This internalization leads to social psychological and behavioral consequences, such as secrecy, withdrawal from social relationships and roles, and downgrading of life goals and aspirations, all of which are self-sabotaging. At the same time, because of pervasive public stigma, people with stigmatized conditions experience social rejection and discrimination from various figures in their lives—family members, friends, neighbors, current and potential employers, etc.—resulting in additional adverse outcomes. Finally, structural stigma through laws, policies, and procedures exacerbates the impact of stigma at the individual level, reducing opportunities and erecting barriers to maintaining social and institutional connections (e.g., friendships, jobs, stable housing,

treatment access) that would facilitate recovery and community reintegration. Thus, stigma infiltrates virtually every aspect of an affected person's life at multiple levels, from micro to meso to macro, exacerbating the primary impact of SUD symptoms on well-being, life satisfaction, relationships, and life chances.

For social psychologists, the focus of the work on the consequences of stigma on its targets has primarily been on the psychological implications of stigma. Sociologists and public health researchers, however, have focused predominantly on the social, structural, and health implications of stigma. This divergence presents a core strength of a cross-disciplinary approach because it provides a wider lens for characterizing and understanding the negative implication of stigma. However, a limitation of interdisciplinary research is that it has primarily focused on mental illness stigma. Indeed, the few studies that have considered both mental illness and SUD stigma have not dissociated the two. Thus, the following review of the consequences of stigma leans more heavily on the mental illness literature to shed light on the potential impact of stigma on individuals with SUD across these myriad domains. Identifying downstream consequences of SUD stigma for social stratification, well-being, and recovery is essential for developing policies and programs targeted at alleviating structural stigma.

Self-perception

Social psychological theories of stigma have focused on numerous psychological effects of stigma on its targets. The most relevant for SUD stigma are negative treatment, greater self-stigma (Evans-Lacko, Brohan, et al., 2012), and social identity threat (Major & O'Brien, 2005). Being stigmatized negatively affects individuals' psychological well-being (Hoyt et al., 2019; Pachankis et al., 2018; Yu et al., 2021) and is a direct threat to the individual as a member of a devalued group (Tajfel & Turner, 2004). As a result, stigmatization can negatively impact self-esteem because it creates an ambiguity for a stigmatized individual about whether negative treatment they might receive is due to their own behavior or their stigmatized identity (Crocker et al., 1998).

Self-esteem plays an important role in preserving individuals' self-efficacy (beliefs that they have the resources and ability to overcome any possible barriers), which is essential for successfully engaging in and completing treatment (Livingston & Boyd, 2010; Major & O'Brien, 2005; Ritsher & Phelan, 2004). Reduced self-efficacy and self-esteem are associated with maladaptive coping and negative outcomes across multiple domains (Bandura & Locke, 2003; Kadden & Litt, 2011; Leary et al., 1995), including increased SUD use

(Arsandaux et al., 2020) and reduced treatment engagement (Ajzen, 1991; Ryan & Deci, 2000; Ryan et al., 2008). Self-efficacy, and especially the belief that one is capable of recovery, has been identified as a critical component of initiating treatment for mental illness or SUD, overcoming setbacks, persisting in treatment, and receiving effective treatment (Chavarria et al., 2012; Pelletier et al., 2017; Schwarzer & Fuchs, 1996). In sum, the belief that one can achieve desired results through effort is associated with nearly every outcome that requires effort to succeed (Bandura & Locke, 2003), including SUD recovery.

Stigma also has negative implications for health (Major, Dovidio, & Link, 2018). According to one model, stigma negatively affects health on multiple fronts (Major, Dovidio, Link, & Calabrese, 2018). First, experiencing and internalizing stigma create stress, which negatively affects health. At the same time, public and structural stigma reduce access to treatment, thus creating a vicious cycle for health and well-being. This burden may be particularly pronounced for concealable stigmatized identities, such as mental illness or SUD, because the act of concealment can increase stress (Quinn, 2017).

Interpersonal relationships and social networks

The onset of SUD has far-reaching consequences for individuals' social interactions and networks (Lipton et al., 1981). Studies of public stigma indicate that many Americans want to socially distance themselves from individuals with SUD and express concerns about living, working, and socializing with these populations (Link et al., 1999; Martin et al., 2000; Perry et al., 2020; Pescosolido et al., 2021). Social rejection sentiments are particularly pronounced (i.e., endorsed by nearly three quarters of respondents) for having a person with SUD marry into one's family or work closely in a job (Perry et al., 2020). These patterns may reflect the role of perceptions of incompetence in social rejection, wherein a person being unable to fulfill responsibilities or being a burden become particularly salient (e.g., becoming a family member, being a coworker). Indeed, a recent study found that social rejection sentiments on these salient dimensions were particularly pronounced for individuals described as actively using an illicit substance (e.g., heroin, methamphetamine), although desire for social distance was slightly attenuated when the individual was described as being in active recovery (Krendl & Perry, 2022).

When asked directly, people with SUD report experiencing social rejection or exclusion by friends, family members, romantic partners, neighbors, and employers

(Peterson et al., 2007; Perry, 2011; Todd et al., 2004; Wesselmann & Parris, 2021; Wright et al., 2007). According to theoretical models of rejection sensitivity, the salience of this potential rejection could reduce individuals' willingness to seek treatment for SUD or to engage with health-care providers by exacerbating their distrust (e.g., Mendoza-Denton et al., 2002). Although disclosure can promote better health outcomes (Bos et al., 2009), it runs the risk of straining social relationships (A. M. Jones, 2011). In a large qualitative interview study of people with mental illness, participants reported that friends stopped contacting them, neighbors no longer visited, and social invitations declined once their psychiatric disorder or mental health treatment was disclosed, contributing to feelings of social isolation and alienation (Wahl, 1999). Additionally, prospective community-based longitudinal studies suggest that mental illness and lower levels of baseline psychological well-being are associated with decreased social support and smaller networks up to a year later (Husaini & Von Frank, 1985). Finally, Link et al. (1989) provided evidence of the impact of self-stigma on relationships, finding that people with mental illnesses endorse strategies to cope with stigma (e.g., secrecy and withdrawal). Moreover, they found that their support networks are compromised by these strategies and by the fear of rejection more generally. Perhaps for these reasons, individuals with concealable stigmatized identities such as SUD will disclose their condition only when they feel that the benefits will substantially outweigh the costs (Chaudoir & Fisher, 2010). Because SUD is highly stigmatized, the costs associated with disclosure (being socially rejected or ostracized) may make people with SUD less likely or less willing to disclose their condition.

The impact of stigma on people with SUD is also observed in their romantic and sexual relationships, which are critical for well-being and life satisfaction (Buckley et al., 1999; Carey et al., 2001; Kessler et al., 1998; Rodriguez & Prestwood, 2019). A consistent finding across dozens of studies is that the overall frequency of sexual activity and presence of sexual relationships are lower among persons with mental illness and SUD compared with the general population (Buckley et al., 1999; Carey et al., 2001; K. McKinnon & Rosner, 2000). Although this topic has been less closely examined in people with SUD, research on people with serious mental illness suggests that only a small minority successfully find and maintain longer term sexual or romantic relationships, either through marriage or cohabitation (Buckley et al., 1999; Dickerson et al., 2004; Perry & Wright, 2006). Some work suggests that this is at least partly due to people with mental illness believing that they are not good enough for a

partner or are not desirable (Rodriguez & Prestwood, 2019; Wainberg et al., 2016; Wright et al., 2007).

Employment and housing

Despite laws intended to protect people with mental illness from discrimination in the workplace (Aoun & Appelbaum, 2019; Cummings et al., 2013), the second most common discrimination charge filed under the Americans With Disabilities Act has been for psychiatric disorders (Colker, 2001; Scheid, 1999, 2005). There is substantial evidence that stigma against people with mental illness and SUD results in reduced employment opportunities (Baldwin et al., 2010; Henkel, 2011; National Academies of Sciences, Engineering, and Medicine, 2016; Sharac et al., 2010) and greater odds of termination (Baldwin et al., 2010; Manning & White, 1995). These patterns, in turn, result in disproportionate poverty and low income among people with mental illness and SUD (Baldwin & Marcus, 2006; Link, 1982, 1987). In a study of people with mental illness (Peterson et al., 2007), approximately one third experienced problems finding or keeping a job because of their condition. They reported being passed over for jobs and promotions after disclosing their mental illness, being the first to be fired or laid off, being mistreated by supervisors, and being avoided by coworkers (Goldberg et al., 2005; Russinova et al., 2011). Additionally, self-stigma may play a substantial role in employment outcomes among people with mental illness or SUD (Pinel, 1999). Specifically, stigmatized individuals may avoid applying for a job because of low self-efficacy or self-esteem (e.g., they may believe they are incompetent or unworthy). Alternatively, they may not apply for positions because they fear being discriminated against by potential employers.

These perceptions of potential or actual discrimination and prejudice are confirmed by experimental audit studies. For example, one group of researchers sent fictitious job applications in response to listed positions, signaling either a history of mental illness or a history of physical injury (Hipes et al., 2016). The candidates with a history of physical injury received nearly 50% more callbacks than those with a history of mental illness. In a similar study focusing on people with a history of SUD, participants were asked to evaluate fictitious job applications that varied only in their response to a question about legal history (Curran, 2017). Applicants who indicated "possession of a controlled substance" were evaluated significantly more negatively than those who reported "none" or "will discuss."

Through similar mechanisms, people with mental illness or SUD also experience housing discrimination (P. Corrigan et al., 2003; National Academies of Sciences,

Engineering, and Medicine, 2016). A recent longitudinal study, for example, identified strong relationships over time among mental illness discrimination, stigma trajectories, and housing outcomes, including homelessness (National Academies of Sciences, Engineering, and Medicine, 2016). In other research, SUD and mental illness have been linked to eviction and difficulty obtaining long-term leases (Dineen & Pendo, 2020; Metraux, 2002). An audit study of landlords who had posted ads for rental units found that when the person inquiring mentioned that they would soon be released from a psychiatric institution, the response was 6 times more likely to be negative (e.g., stating the apartment was unavailable) compared with a control condition (Page, 1977). There is also significant evidence of community rejection of mental health and SUD treatment facilities, including group housing, across multiple studies—a phenomenon known as *NIMBYism* (NIMBY meaning "not in my backyard"; Callard et al., 2012, Chapter 7; Horn et al., 2021; Piat, 2000).

Help-seeking and recovery

More than two decades of work have implicated stigma as a barrier to seeking mental health treatment (Clement et al., 2015; P. W. Corrigan et al., 2012, 2014; Gulliver et al., 2010; Komiya et al., 2000; Link et al., 2001; Phelan et al., 2000; Sickel et al., 2014), with recent work extending this to the domain of SUD (P. Corrigan et al., 2017; Gourley & Krendl, 2023; Luoma, 2010; Luoma et al., 2014). For example, one study found that individuals with a lifetime diagnosis of an alcohol use disorder were less likely to use alcohol services if they perceived there to be high stigma in society toward individuals with alcohol use disorders (Keyes et al., 2010).

Additional work has found that although stigma is not the only barrier to seeking mental health treatment (Arnaez et al., 2020; Gulliver et al., 2010; Haugen et al., 2017; Mojtabai et al., 2011), it accounts for the most variance in predicting negative attitudes toward treatment seeking (Komiya et al., 2000) and exacerbates the emphasis placed on other barriers (e.g., cost, time, perceived need of treatment; Arnaez et al., 2020; Sickel et al., 2014). Self-stigma, in particular, has a particularly pernicious influence on people's attitudes toward mental health treatment (Arnaez et al., 2020; Livingston & Boyd, 2010; Vogel et al., 2007). Studies on university campuses have found that self-stigma is negatively associated with use of mental health services (Komiya et al., 2000; Vogel et al., 2007). Indeed, a large-scale study with nearly 6,000 students from 13 different universities found that self-stigma was negatively associated with

use of mental health services as well as deficits in non-clinical support (Eisenberg et al., 2009). These findings are supported by meta-analyses, which have also established a strong negative relationship between self-stigma and mental health treatment engagement ($r = -.38$; Livingston & Boyd, 2010).

Although less widely explored, structural stigma has also been identified as a barrier for seeking mental health treatment (Gulliver et al., 2010; Hatzenbuehler, 2016, 2017). A recent study extended this work to SUD and found that among individuals who self-identified as having misused substances (e.g., alcohol, prescription opioids, stimulants), the extent to which they endorsed structural stigma negatively predicted their willingness to seek treatment, even when the authors controlled for participants' self- and public stigma (Gourley & Krendl, 2023). Structural stigma affects individuals with SUD in myriad ways, including through laws and policies that regulate substance use and limit access to health care (Hemeida & Goldberg, 2022).

In addition to affecting attitudes toward treatment and initiation of help-seeking, stigma also influences treatment outcomes among people with mental illness and SUD (Cernasev et al., 2021; Crapanzano et al., 2019). For example, stigma jeopardizes the odds of persistence in treatment and eventual recovery and also increases the likelihood of relapse (Brener et al., 2010; Clement et al., 2015). One study of the iatrogenic effects of treatment programs found that a significant minority of individuals who enter treatment for SUD leave worse off than before and that perceived stigma was a strong predictor of this deterioration (Moos, 2005).

Perhaps the most illustrative example of the profound ways that SUD stigma can disrupt treatment pertains to medication for opioid use disorder (MOUD). Although medication is the most effective treatment for opioid use disorder, it is highly stigmatized (Woods & Joseph, 2018). Because some forms of MOUD (e.g., methadone) require frequent visits to special clinics licensed to distribute the medication, prospective patients report fear of being seen there by members of their community, leading to poor adherence and relapse (Cernasev et al., 2021). Additionally, many people with SUD avoid MOUD because others, including health-care professionals, continue to perceive them as addicted to drugs and therefore not actually in recovery (Hewell et al., 2017). Finally, research demonstrates that many physicians will not treat clients using office-based MOUD, instead preferring abstinence (a less effective strategy), because of these very biases and because of fears that people with SUD coming to their practice will drive other patients away (Dickson-Gomez et al., 2022; Madden et al., 2021; Richter et al., 2019).

Future directions

Together, the findings discussed in this section highlight the myriad negative repercussions of stigma for its targets. Stigma negatively affects individual's self-esteem; limits the quality and quantity of their interpersonal relationships; reduces their access to employment, housing, and health care; and disrupts their willingness to seek and adhere to treatment. Stigma thus disrupts individuals' well-being and chances for recovery on multiple levels, making it particularly challenging to overcome. However, we need future work that more clearly dissociates the impact of mental illness stigma from SUD stigma on its targets, as well as how, if at all, it differs across specific types of SUD.

Policies that specifically target stigmatizing laws will remove important barriers to treatment and equitable outcomes for individuals with SUD. Emerging work has begun to demonstrate the prevalence of laws that stigmatize SUD in the United States. For example, a recent pilot study of 20 counties in California identified laws that promoted SUD stigma in every county (Hemeida & Goldberg, 2022). Employment law was the most common domain (occurring in nearly 86% of the counties). Stigmatizing laws can jeopardize treatment, both indirectly (e.g., by denying access to employment) and directly (e.g., through "nuisance laws," which can be used to ban sober living facilities or needle exchange sites). With respect to the latter, the pilot study in California found that nearly half of the laws stigmatizing SUD were nuisance laws (Hemeida & Goldberg, 2022). Thus, one area of future work would be to compare laws promoting stigma toward people with SUD and those with mental illness to determine which is more prevalent. Critically, future work should evaluate the consequences of those laws on stigma (e.g., by determining whether they are associated with higher negative beliefs and affective responses to individuals with SUD). Moreover, identifying the domains in which stigma is highest (e.g., employment) will be directly relevant for policymaking.

In the next two sections, we take an interdisciplinary approach to advance our understanding of the drivers of SUD stigma. This approach allows us to leverage the strengths of the different discipline-specific approaches and to identify potential gaps that have emerged between fields. Within the field of social psychology, for example, we leverage the broader theoretical frameworks that have been developed to characterize the beliefs and affective responses that drive stigma (Crocker et al., 1998). However, a limitation of this research is that it generally examines mental illness and SUD in the context of stigma more broadly (Fiske et al., 2002, 2007; E. E. Jones et al., 1984; Pachankis et al.,

2018), again often collapsing mental illness and SUD together (Feldman & Crandall, 2007; but see Pachankis et al., 2018; Towler & Schneider, 2005). This approach may limit the field's ability to relate broader theories to mental illness and SUD specifically.

Other fields, including sociology and public health, have focused more specifically on identifying the beliefs and behaviors elicited by mental illness and/or SUD stigma (Barry et al., 2014; Kennedy-Hendricks et al., 2017; Link, 1987; Link et al., 1999; Pescosolido, 2013; Pescosolido et al., 2021). These studies have often been conducted with large, representative samples and, in some cases, provide longitudinal assessments of mental illness and SUD stigma, with a primary focus on public stigma. Although this approach has greater specificity than social psychological approaches, it does not provide the broader contextual framing for understanding how and why mental illness and SUD stigma are unique from other types of stigma, as well as from each other. Thus, these distinct approaches provide a complementary and broader conceptual framework for understanding SUD stigma. We consider their specific contributions in the subsequent sections, focusing first on the beliefs that drive mental illness and SUD stigma.

Identifying Stigma-Related Beliefs and Attributions Associated With SUD and Mental Illness

In its earliest conceptualization, stigma was generally viewed as stemming from one of three categories: character flaws, physical disabilities, or group identity (Goffman, 1963). Here, mental illness and SUD were both considered to be character flaws, and individuals with either of them were thus considered to be part of the same stigmatized group. Although Goffman's conceptualization has been highly influential, subsequent work noted that these three categories did not capture all stigmatized groups (E. E. Jones et al., 1984; King et al., 2005). Thus, social psychological research over the ensuing decades focused on developing a more comprehensive theoretical framework for categorizing stigmatized groups and identifying the beliefs that drive social stigma. Identifying those beliefs is important because they shape the subsequent affective responses and discriminatory behaviors that people have to stigmatized individuals (Crocker et al., 1998; Dovidio et al., 2000). In parallel, research in the fields of sociology, clinical psychology, and public health emerged to identify how specific stigma-related beliefs (e.g., perceptions of dangerousness) drive mental health and SUD stigma (Barry et al., 2014; P. Corrigan, 2004; Link et al., 1999; Pescosolido & Martin, 2015). In this cross-disciplinary

work, there has been an evolving discordance about whether the beliefs underlying mental illness and SUD should be considered similar or distinct. In this section, we review some of this work and highlight knowledge gaps.

An important caveat in understanding the beliefs that drive mental illness and SUD stigma is that they likely differ across specific conditions. For example, although the literature lacks a comprehensive assessment of how and why stigma differs across mental illness conditions, the general consensus is that psychotic disorders (e.g., schizophrenia) are more stigmatized than mood (e.g., depression) and anxiety (e.g., obsessive compulsive) disorders, which typically do not differ from each other (Anderson et al., 2015; Link et al., 1999; Pescosolido, 2013; Robinson et al., 2019; Wood et al., 2014). This pattern generally persists across cultures (Krendl & Pescosolido, 2020; Pescosolido, 2013). The magnitude of SUD stigma, however, can be simplified along a key structural dimension—perceived legality of use. Specifically, substances that can be used legally in the United States (e.g., alcohol and, in some cases, marijuana) are generally less stigmatized than those that cannot (e.g., cocaine, heroin; Brown et al., 2015; Goodyear et al., 2018; Krendl & Perry, 2022; Weeks & Stenstrom, 2020). Although there is limited work comparing stigma within legality status (Brown, 2015; Janulis et al., 2013; Link et al., 1999; McGinty et al., 2015; Perry et al., 2020), a recent study found that stigma generally does not differ toward illicit substances (heroin, methamphetamine), but some legal substances (e.g., alcohol) may be less stigmatized than others (e.g., prescription opioids), albeit with some nuances (Krendl & Perry, 2022). Broadly speaking, SUD is typically more stigmatized than mental illness. However, when examining specific SUD and/or mental illness type, several studies have shown that schizophrenia is stigmatized to a similar extent as some SUD types (Link et al., 1999; Perry et al., 2020; Pescosolido, 2013). Given these important differences, we consider mental illness and SUD by type, when possible, to better elucidate potential points of convergence and divergence.

Social psychological researchers have generally identified the beliefs that are key drivers of stigma as the extent to which the condition is perceived to be socially undesirable, dangerous, controllable (e.g., caused by the individual), changeable (e.g., recovery is perceived as possible), and/or visible (Deaux et al., 1995; Frable, 1993; E. E. Jones et al., 1984; Towler & Schneider, 2005; Weiner et al., 1988). When applying these beliefs to mental illness and SUD, however, some researchers have collapsed them into the same group (Feldman & Crandall, 2007), which obfuscates any potential differences between the two. Additional work has addressed

this by both expanding these beliefs to also consider disruptiveness—the extent to which a condition strains social relationships—and examining mental illness and SUD separately (Pachankis et al., 2018). Here, different beliefs were shown to contribute to their respective stigmatization. Specifically, SUD was viewed as moderately changeable and disruptive but highly controllable and threatening. Conversely, mental illness was generally viewed as less controllable, changeable, threatening, and disruptive than SUD.

The fact that threat, controllability, and disruptiveness were more strongly emphasized in SUD than mental illness may shed light on why studies across numerous fields have generally shown that the former is more stigmatized than the latter (Barry et al., 2014; P. W. Corrigan et al., 2009; Martin et al., 2000; Perry et al., 2020; Rey et al., 2019; Schomerus et al., 2011). Simply put, these beliefs have been widely shown to predict greater stigma. Although speculative, this relationship may be exacerbated by the extent to which stigma-related beliefs are reinforced on structural levels. For example, some existing policies and practices reinforce beliefs that individuals with SUD are dangerous to the general public (e.g., zoning laws that separate treatment facilities from neighborhoods). Similarly, imbalanced media portrayals that overwhelmingly depict individuals with SUD as dangerous or disruptive likely reinforce related beliefs about SUD (McGinty et al., 2019). Although research suggests that some active SUDs can create interpersonal and family conflict and strain and are associated with higher risk for perpetrating particular types of crime and violence (e.g., intimate-partner violence, property crimes; White, 2016; Zhong et al., 2020), these relationships are complex and multifactorial. The link between SUD and violence, for example, is confounded and mediated by a wide range of social, psychological, and economic risk factors, including psychiatric comorbidity, adverse childhood experiences, poverty, violent victimization, and male sexuality (Mason & O'Rinn, 2014; White, 2016; Zhong et al., 2020). These confounding factors are often oversimplified or simply overlooked, thus inflating these beliefs.

Although research in the fields of sociology and public health has demonstrated that both perceived threat and controllability drive SUD and mental illness stigma, a limitation of this work is that it has primarily focused on those beliefs exclusively (Brown et al., 2015; Feldman & Crandall, 2007; Foster & O'Mealey, 2022; Janulis et al., 2013; Krendl & Freeman, 2019; Perry et al., 2020; Pescosolido et al., 1999), largely overlooking the potential role of other beliefs in mental illness and SUD stigma. For example, the role of disruptiveness on mental illness and SUD stigma is generally

understudied in these fields, despite being a key feature of social psychological theories of stigmatization (Fiske et al., 2002, 2007; E. E. Jones et al., 1984). This fact is surprising given that sociological research has demonstrated that individuals with SUD are disproportionately identified as "causing problems" in personal social networks (Railey et al., 2023), suggesting that they are viewed as highly disruptive. However, an important consideration in examining the impact of disruptiveness beliefs on SUD stigma is that different fields have operationalized disruptiveness in disparate ways (Krendl & Freeman, 2019; Link et al., 1999; Perry et al., 2020; Pescosolido et al., 1999; Towler & Schneider, 2005). Thus, the nature and scope of its potential impact are difficult to discern.

In the next few sections, we explore the role of different stigma-related beliefs (e.g., dangerousness, controllability) in mental illness and SUD stigma in more detail. Although perceived changeability (e.g., whether recovery is possible) is often confounded with controllability, we consider beliefs about changeability separately, as they may play a particularly important role for SUD stigma. Each section considers two key questions: (a) How, if at all, do these beliefs differentially contribute to mental illness and SUD stigma? (b) What are the key gaps in research on these topics? Regarding the former, the nature and magnitude of stigma differ across disparate mental disorders and SUD types (e.g., depression, schizophrenia, alcohol dependence, cocaine dependence) and even across cultures (Fiske, 2012; Krendl & Freeman, 2019; Krendl & Perry, 2022; Krendl & Pescosolido, 2020; Martin et al., 2000; Schomerus et al., 2011; Wood et al., 2014). One possible reason for this is that different beliefs are attributed to different mental illnesses and SUD conditions (Ahern et al., 2007; Feldman & Crandall, 2007; Fiske, 2012; Krendl & Freeman, 2019; Krendl & Perry, 2022; Wood et al., 2014). However, because the extant mental illness and SUD stigma research presents these conditions generically (e.g., "individuals with mental illness," "drug addicts") or focuses on a subset of specific conditions (e.g., depression, schizophrenia, alcohol dependence, prescription opioid dependence), the scope of these differences is not clearly understood. We highlight these differences as they pertain to SUD stigma in each section.

Beliefs about dangerousness

Perceived dangerousness has been a primary focus in a large portion of cross-disciplinary research on mental illness and SUD stigma (Brown et al., 2015; Janulis et al., 2013; Perry et al., 2020; Pescosolido et al., 1999). An important benefit of this work is that it generally

operationalizes dangerousness in a consistent manner, thereby allowing for more cohesive and comprehensive evaluations of the findings. The National Stigma Study (NSS) has been central to this work. The NSS is a nationally representative survey on mental illness and SUD stigma that was fielded in 1996, 2008, and 2018 as part of the General Social Survey. It uses a vignette approach to capture beliefs about and stigma toward depression, schizophrenia, alcohol use disorder, and drug dependence (specified as "opioid use disorder" in 2018). Importantly, the NSS examines beliefs about specific SUD conditions (alcohol dependence and, most recently, prescription opioid dependence) and types of mental illness (depression, schizophrenia) and uses the same measures to capture beliefs across conditions. This approach allows for direct comparisons among the specific conditions.

Results from the NSS have shown that dangerousness beliefs drive SUD and mental illness stigma, but these beliefs are generally stronger for SUD than mental illness (P. W. Corrigan et al., 2009; McGinty et al., 2015; Perry et al., 2020; Pescosolido et al., 1999). This finding is consistent with work that has also found that individuals with SUD are more likely than those with mental illness to be perceived as dangerous (P. W. Corrigan et al., 2009; McGinty et al., 2015; Schomerus et al., 2011). However, important nuances emerge across the different SUD and mental illness conditions. Specifically, the NSS has shown that individuals with alcohol or drug dependence and individuals with schizophrenia elicit the highest levels of stigma and are viewed as more dangerous than individuals with depression (Link et al., 1999; Pescosolido et al., 1999).

One consistent finding in the SUD stigma literature is that perceptions of dangerousness differ across SUD types. For example, when SUD is operationalized as "alcohol dependence," it is perceived as being as dangerous as schizophrenia (Pescosolido et al., 2019). This finding is consistent with the results of a systematic review finding that, across cultures, individuals with alcohol dependence were perceived as being as dangerous as individuals with schizophrenia (Schomerus et al., 2011). However, when SUD is labeled as "cocaine dependence," perceptions of dangerousness shift such that it becomes more dangerous than schizophrenia (Link et al., 1999).

A possible conceptual framework that dissociates the magnitude of threat associated with different SUD types may be the perceived legality of the SUD. Indeed, one of the few studies that examined perceived danger within substance type found that individuals who are dependent on illicit substances, such as heroin, are viewed as more dangerous than those who are dependent on alcohol (Janulis et al., 2013). Another study

found that individuals who abuse prescription opioids are perceived as less dangerous than individuals who abuse alcohol (Perry et al., 2020). Individuals who abuse illicit substances are perceived as more dangerous than individuals who abuse prescription opioids or alcohol (Krendl & Perry, 2022).

An important implication of perceptions of dangerousness is that these beliefs persist over time. Using the 1996 and 2018 iterations of the NSS, researchers found continuity in public beliefs that individuals with schizophrenia and alcohol dependence are dangerous. For example, in 2018, nearly two thirds of respondents viewed individuals with alcohol dependence or schizophrenia as dangerous (compared with 30% who viewed individuals with depression that way; Pescosolido et al., 2019). The persistence of these beliefs may be why stigma toward these groups has not declined over the past several decades (Pescosolido, 2013; Phelan et al., 2000) despite increases in the public's mental health literacy (e.g., attributions about the biological etiology of mental illness; Pescosolido et al., 2010). This pattern is important for two reasons. First, it suggests that interventions that target literacy may not be effective if they do not directly target the beliefs that drive stigma. Second, because SUD is perceived to be more dangerous than most mental illnesses, SUD stigma may be particularly resistant to change. However, efforts that target other stigma-related beliefs, such as controllability, may indirectly attenuate perceptions of dangerousness. We explore this possibility next.

Beliefs about controllability

Controllability refers to the belief that individuals are responsible for the onset of their condition (Hegarty & Golden, 2008; Weiner et al., 1988). These beliefs contrast with *changeability*, which refers to the belief that a stigmatized condition can improve. Within the field of social psychology, controllability beliefs increase blame and have been widely shown to increase stigma (Crandall & Eshleman, 2003; Hegarty & Golden, 2008; Rodin et al., 1989; Sherman et al., 2005), particularly for mental illness (Feldman & Crandall, 2007; Foster & O'Mealey, 2022; Krendl & Freeman, 2019). For example, in an examination of 40 mental disorders, psychologists found that perceived controllability was the strongest predictor of stigma toward those disorders, followed by dangerousness (Feldman & Crandall, 2007). Importantly, other work has shown that controllability beliefs differ across mental illness conditions, with certain conditions (e.g., depression) being viewed as more controllable than others (e.g., schizophrenia; Krendl & Freeman, 2019). Although this work has not been extended to different SUD types, SUD is generally

viewed as more controllable than mental illness (P. W. Corrigan et al., 2009; Link et al., 1999; McGinty et al., 2015; Perry et al., 2020).

Manipulating controllability beliefs has demonstrated that portraying a stigmatized condition as uncontrollable elicits less stigma than portraying it as controllable (Crandall & Moriarty, 1995; Nutter et al., 2018; Schwarzer & Weiner, 1991; Weiner et al., 1988). For example, HIV could be described as either controllable (e.g., "he got HIV from sharing needles") or uncontrollable (e.g., "he got HIV from a blood transfusion"). The "uncontrollable" description generally reduces stigma and increases people's willingness to interact with and help stigmatized individuals (Crandall & Martinez, 1996; Nutter et al., 2018; Schwarzer & Weiner, 1991; Weiner et al., 1988).

Although these findings could be interpreted as support for emphasizing the genetic or biological (e.g., uncontrollable) etiologies of mental illness and SUD, a consequence of this approach is that it may reduce perceptions that the condition can be changed. In other words, reducing one stigma-related belief (controllability) may inadvertently reduce another (changeability). For example, one study described alcohol use disorder as either genetic or nongenetic (i.e., uncontrollable vs. controllable). Although the uncontrollable (genetic) explanations reduced blame, they also reduced perceptions that the condition would benefit from treatment (Lebowitz & Appelbaum, 2017). Hence, reducing perceptions of controllability also seemed to reduce perceptions of changeability. This cascading effect may be particularly deleterious for individuals with SUD or mental illness given that perceiving that mental illness and SUD are treatable is important for reducing self- and public stigma and removing structural barriers to care. Consistent with this assertion, prior work has found that shifting beliefs about controllability for mental illness (e.g., by emphasizing its biological etiology) does not seem to meaningfully affect stigma (Hegarty & Golden, 2008; Pescosolido, 2013; Pescosolido et al., 2021).

Maintaining synergy in how different disciplines conceptualize controllability is also important for broadening our understanding of how it affects stigmatization. However, there is currently a discordance in how this belief is measured in cross-disciplinary research. In the NSS, for example, controllability beliefs are assessed by asking respondents to endorse the extent to which a mental illness or SUD is due to a person's bad character, the way they were raised, stressful life circumstances, a chemical imbalance in their brain, or genetic causes (Perry et al., 2020; Pescosolido et al., 2019, 2021). Within social psychology, however, controllability is often captured by asking individuals the extent to which stigmatized individuals are responsible for their condition or could be blamed for the onset of their

condition (Schwarzer & Weiner, 1991; Weiner et al., 1988). These approaches are similar in that both attempt to dissociate conditions that individuals can control from those they cannot. However, an important dissimilarity between the two is that some measures (e.g., biological explanations) may also inadvertently influence beliefs about the condition's changeability. Conversely, measures that emphasize personal responsibility may not have this spillover effect. This is a critical consideration given that the two beliefs are conceptually distinct and contribute uniquely to stigma (P. W. Corrigan et al., 2000), a point discussed above and that we will revisit in the next section.

Recent work has shown that the relationship between beliefs about controllability and mental illness stigma are mediated by beliefs that individuals are responsible for the onset of their mental illness (Foster & O'Mealey, 2022). However, the role of perceived controllability in SUD stigma remains less clear. The limited studies examining the role of controllability on SUD stigma have yielded mixed results. For example, one study found that manipulating controllability by directly manipulating personal responsibility (e.g., voluntarily starting to use drugs vs. becoming addicted after surgery) did not affect SUD stigma (Witte et al., 2019), whereas a different study using a similar manipulation found that stigma was higher toward individuals with prescription opioid dependence when the onset of their dependence was depicted as relatively controllable (e.g., through recreational use) than as uncontrollable (e.g., through medical use, as prescribed by a doctor; Krendl & Perry, 2022). One possibility for these discrepancies could be that they used different samples (undergraduates in the former vs. a representative sample of U.S. residents in the latter) and thus may reflect different belief systems between the two groups.

In summary, framing conditions as uncontrollable decreases stigma for some conditions (Vescio et al., 2003) but may have the unintended consequence for mental illness and SUD of also reducing perceptions that it is changeable. This finding may be particularly relevant for SUD given that it is generally viewed as more controllable than mental illness (P. W. Corrigan et al., 2009; Link et al., 1999; McGinty et al., 2015; Perry et al., 2020). In other words, it is possible that controllability beliefs may be more deeply rooted for SUD than for mental illness and thus more resistant to change. Future work could shed light on this possibility.

Beliefs about changeability

Perceived changeability is the belief that stigmatized individuals can overcome their condition. That is, if a condition is changeable, it is seen as a temporary state

rather than a feature of the person's essential character. Thus, a promising approach for offsetting the negative impact of beliefs about controllability on SUD stigma may be to emphasize that SUD is changeable (e.g., through treatment leading to recovery). This approach may be particularly beneficial for reducing SUD stigma given the high recovery rates associated with SUD. Generally, recovery rates for addiction (defined broadly, including long periods of no relapse) are expected for nearly three quarters of all people who seek treatment (Miller, 2023).

An important challenge to emphasizing changeability is that it is often conflated with controllability, as discussed in the previous section. Thus, dissociating the two concepts is important given that some research suggests that changeability may offset controllability concerns (Schwarzer & Weiner, 1991). Indeed, one study found that although perceptions of controllability were lower toward schizophrenia compared with anxiety and depression, the higher levels of stigma toward schizophrenia were driven by strong pessimism regarding the possibility of recovery (Wood et al., 2014).

Prior work has shown that emphasizing changeability in mental illness and SUD may also reduce other stigma-related beliefs (Krendl & Perry, 2022; McGinty et al., 2015; Wood et al., 2014). For example, Pachankis and colleagues (2018) dissociated active SUD use from SUD in recovery. They found that SUD in recovery was viewed as less controllable and less threatening than active SUD. Moreover, SUD in recovery was viewed similarly to symptomatic mental illnesses (e.g., depression). Consistent with this finding, another study found that emphasizing changeability (e.g., active recovery) reduced stigma toward all four measured SUD types (alcohol, prescription opioid, heroin, and methamphetamine) but had the most pronounced impact on stigma toward the more vilified substances (heroin and methamphetamine; Krendl & Perry, 2022). One reason for this might be that SUD is generally perceived as more changeable than mental illness (P. W. Corrigan et al., 2006; Perry et al., 2020). It may therefore be possible to leverage beliefs about changeability to reduce SUD stigma. However, an important caveat to this approach is that emphasizing changeability may have the unintended consequence of increasing perceptions that individuals with SUD are responsible for their addiction, which could exacerbate public and structural stigma. Thus, this approach should be used with caution, potentially by using it to reduce self-stigma.

Together, the findings reviewed in this section suggest that emphasizing changeability may be important for reducing stigma toward SUD and some mental illnesses (e.g., Pachankis et al., 2018) but may be particularly effective for SUD self-stigma. Specifically,

emphasizing the potential changeability of SUD may be an avenue for offsetting controllability beliefs, but this possibility should be investigated more closely.

Beliefs about disruptiveness

Beliefs about disruptiveness, the extent to which stigma interferes with smooth social interactions, have also been implicated as drivers of mental illness stigma (E. E. Jones et al., 1984). However, of the beliefs discussed thus far, disruptiveness is the least well defined. From a social psychological perspective, disruptiveness is sometimes assessed by asking individuals the extent to which they find members of that group to be socially undesirable and/or disruptive (Krendl & Freeman, 2019; Towler & Schneider, 2005). The NSS assesses disruptiveness through perceptions of competence, such as by asking the extent to which individuals with mental illness or SUD are perceived to be capable of managing their own finances or making decisions about their treatment (Link et al., 1999; Perry et al., 2020; Pescosolido et al., 1999). Other work has measured disruptiveness by asking perceivers the extent to which they think individuals with mental illness are "dependent on others," "needy," or "helpless" (Angermeyer & Matschinger, 2003b; Roehrig & McLean, 2010). We review some of the overall findings from this work below.

Perceptions of competence differ across mental illness types. Specifically, individuals with schizophrenia are perceived as more dependent on other people than are individuals with depression (Angermeyer & Matschinger, 2003a). In some of the few comparisons of competence between individuals with mental illness and SUD, the latter are generally viewed as less competent than the former (Perry et al., 2020; Pescosolido et al., 1999). For example, results from the NSS demonstrated that individuals with drug dependence were perceived as less capable of making autonomous decisions about finances or treatment compared with individuals with schizophrenia or depression (Pescosolido et al., 1999). Similarly, individuals with prescription opioid dependence or alcohol dependence were viewed as less competent than individuals with depression (Perry et al., 2020) but as having similarly low competence as individuals with SUD (Boysen et al., 2020, 2023; Fiske, 2012; Perry et al., 2020; Sadler et al., 2012).

Social psychologists have taken a few different approaches to characterizing disruptiveness. In studies specifically examining mental illness stigma, disruptiveness has been framed as social desirability (Krendl & Freeman, 2019; Towler & Schneider, 2005). However, theoretical models designed to capture stigma more broadly characterize stigma along two dimensions: warmth (the stigmatized individuals' desire to cause harm) and competence (the stigmatized individuals'

ability to harm others; Fiske et al., 2002, 2007). Here, warmth captures some of the core constructs of disruptiveness, whereas competence aligns more closely with beliefs about dangerousness. An important aspect of the warmth–competence framework is that it provides a theoretical model for understanding the consequences of stigma on its targets. For example, it predicts that stigmatized groups that have low perceived competence and low warmth are often dehumanized (Boysen et al., 2020; Fiske, 2012, 2018; Fiske et al., 2002). Recent work has specifically included mental illness and SUD and found that these conditions generally fall in the dehumanized low-warmth, low-competence quadrant (Boysen et al., 2023; Fiske, 2012).

Given that close others with SUD are disproportionately identified as more likely to cause problems in personal social networks (Railey et al., 2023), perceptions of disruptiveness likely play an important role in SUD stigma. However, this belief is the most in need of a more robust and consistent framework in cross-disciplinary work. Future work on this topic should develop consistent and clear ways to operationalize this belief to demonstrate how it contributes to SUD stigma.

Future directions

This section highlighted several key points. First, individuals with SUD are generally stigmatized more than individuals with mental illness. Second, differences in the magnitude of stigma toward mental illness and SUD are likely due to disparate beliefs about these conditions. Specifically, beliefs about dangerousness, controllability, changeability, and disruptiveness all underlie public stigma of both mental illness and SUD, although they may be emphasized differently across conditions. Indeed, variations in these beliefs within and across mental illnesses and SUD may explain observed differences in stigma.

An important caveat to these conclusions is that this section focused on the stigma-related beliefs that have been most widely studied in the context of SUD stigma. However, research should not necessarily be limited to these beliefs. For example, concealability has been widely implicated as playing an important role in stigmatization (Camacho et al., 2020; Chaudoir & Fisher, 2010; Quinn, 2006; Quinn & Earnshaw, 2013) and may be particularly relevant for understanding the impact of SUD self-stigma on psychological well-being (Pachankis, 2007; Quinn & Earnshaw, 2013) and sensitivity to rejection (Mendoza-Denton et al., 2002). Future research should continue to explore underlying beliefs that have received less attention.

The findings reviewed in this section provide insight into cultural and structural factors that may exacerbate negative public beliefs about SUD stigma in ways that

undermine recovery and public support for treatment and harm reduction. Cultural and structural conditions such as imbalanced media portrayals and policies segregating people with SUD send strong messages about dangerousness that are depersonalizing, devoid of context, and create inflated perceptions of risk to public safety. The research reviewed here suggests that these beliefs in turn impact public and self-stigma in ways that increase the likelihood of substance-use-related problems and reduce the odds of recovery. Deliberately changing negative depictions to be more positive may be an important step toward counteracting the negative stigma-related beliefs that drive SUD stigma. Similarly, removing laws that promote beliefs that individuals with SUD are dangerous (e.g., zoning laws that separate treatment facilities from neighborhoods) may also attenuate some of these stigma-related beliefs.

This section also highlighted gaps in how mental illness and SUD stigma have been studied and characterized across different disciplines. Specifically, we noted key gaps where approaches and conceptualizations diverge and/or lack cohesion, notably in how controllability and disruptiveness have been characterized. In the next section, we build on our understanding of the beliefs that underlie mental illness and SUD stigma by reviewing how those beliefs elicit the negative emotional responses that drive stigma. We approach this section through a similar lens, highlighting differences and similarities across mental illness and SUD types and identifying gaps in the literature.

Disentangling the Affective Responses Elicited by the Stigma-Related Beliefs Attributed to Various SUDs and Other Mental Illnesses

In the previous section, we considered the profile of beliefs (e.g., about dangerousness, controllability, changeability, and disruptiveness) that are associated with SUD stigma. These beliefs are important to identify because the affective responses toward stigmatized individuals (e.g., pity, disgust, anger) are related to beliefs (Pryor et al., 2004; Weiner, 1980; Weiner et al., 1988). Although some experimental work suggests a causal relationship between beliefs and affective responses (Caprariello et al., 2009), other work suggests that they may be intertwined (Dovidio et al., 2000). Either way, perceivers' affective responses toward stigmatized groups ultimately contribute to discriminatory actions, including avoidance, social rejection, and/or dehumanization (Angermeyer et al., 2004; Angermeyer & Matschinger, 2003a; P. W. Corrigan, 2002; Pryor et al., 2004; Weiner, 1980; Weiner et al., 1988). Dehumanization

has particularly pernicious implications, given its role in increasing discrimination (Pereira et al., 2009), exacerbating intergroup conflict (Haslam, 2006; Haslam & Loughnan, 2014), and minimizing treatment outcomes (Haque & Waytz, 2012) for stigmatized individuals.

Relatively little work examining mental illness and SUD stigma has focused on affective responses. Nationally representative measures of mental health and SUD stigma (including the NSS) do not typically assess them (Barry et al., 2014; Krendl & Perry, 2022; Link et al., 1999; Link & Phelan, 2001; Perry et al., 2020; Pescosolido et al., 1999). Moreover, the work that has examined the affective responses associated with mental illness and SUD stigma has three important limitations. First, the studies generally rest on the assumption that beliefs predict affective responses, whereas the two may be intertwined (Dovidio et al., 2000). Second, although social psychologists have developed comprehensive models for characterizing the nature of the affective responses to stigma (Boysen et al., 2023; Fiske, 2012), these models have examined a wide range of stigmatized conditions, thus restricting their specific application to SUD. Finally, other disciplines have primarily focused on two distinct emotions—fear and anger (P. W. Corrigan, 2000; P. W. Corrigan et al., 2002; Janulis et al., 2013; Rüsch et al., 2005; Sattler et al., 2017)—largely overlooking emotions such as disgust (but see Boysen et al., 2023; Fiske, 2012; Nieweglowski et al., 2019; Sadler et al., 2015). This omission is important because recent work has associated mental illness and SUD with feelings of disgust and contempt (Boysen et al., 2023; Fiske, 2012; Nieweglowski et al., 2019; Sadler et al., 2015). Because distinct affective responses elicit disparate discriminatory behaviors, characterizing these responses should provide insight into the specific types of discriminatory behaviors that are likely to affect individuals with those stigmatized conditions. Importantly, this insight could provide potential pathways for developing interventions that target those responses.

A challenge to identifying the affective responses associated with mental illness and SUD stigma is that individuals are often unaware of or unwilling to identify those responses. This limitation is addressed, at least partially, in emerging neuroimaging research, which is discussed at the end of this section. However, we first consider what is known about the affective responses that are uniquely activated by SUD. We focus primarily on fear and anger because these are the most commonly studied affective responses associated with mental illness and SUD (Boysen et al., 2020; P. W. Corrigan, 2000; P. W. Corrigan et al., 2002; Janulis et al., 2013; Sattler et al., 2017). We then consider other affective responses, including disgust and contempt, and explore how they might contribute to SUD stigma.

Fear and anger are common affective responses to mental illness and SUD

Prior work attempting to characterize the affective responses to stigma has primarily focused on fear and anger (Boysen et al., 2020; P. W. Corrigan, 2000; P. W. Corrigan et al., 2002; Janulis et al., 2013; Sattler et al., 2017). A key finding in this work is that stigmatized conditions that are perceived as dangerous generally elicit fear (P. W. Corrigan, 2000, 2002; Perry et al., 2007), whereas those that are perceived to be controllable elicit anger (Angermeyer et al., 2004; P. W. Corrigan, 2000). There are distinct consequences for the two affective responses. Specifically, conditions that elicit anger are more likely to result in perceivers' engaging in active harm (e.g., attacking, aggressing) toward individuals with those conditions, whereas conditions that elicit fear are more likely to lead to passive harm (e.g., avoiding, distancing; Sadler et al., 2015).

However, the beliefs and affective responses associated with stigma may be intertwined, and a different emphasis may be placed on each depending on the stigmatized condition (Dovidio et al., 2000). For example, strong attributions or beliefs about a condition (e.g., whether the condition is perceived as controllable) drive the subsequent affective response to individuals with that condition. However, highly stigmatized conditions might activate beliefs and affect concurrently. Because it is challenging to shift people's affective responses (Puhl & Brownell, 2003), disentangling these possibilities could further elucidate whether SUD stigma is relatively resistant to change.

In general, the limited research on the affective responses associated with SUD stigma has relied on the assumption that specific beliefs elicit disparate affective responses. Because SUD is generally viewed as more dangerous than mental illness (P. W. Corrigan et al., 2009; McGinty et al., 2015; Perry et al., 2020; Pescosolido et al., 1999), research on the affective responses associated with SUD stigma has focused specifically on fear. One study focused on stigma toward individuals with alcohol, marijuana, or heroin dependence, finding that perceptions that the condition was dangerous increased fear toward those individuals, which subsequently increased discriminatory behavior (desire for social distance; Janulis et al., 2013). Interestingly, the study also found that having greater personal experience with an individual with SUD reduced perceptions of dangerousness and, subsequently, fear. A review of studies focusing on stigma toward individuals with alcohol dependence found that these individuals elicit more fear and less empathy than individuals with depression or schizophrenia (Schomerus et al., 2011). In addition to its narrow focus on fear, the extant research on the affective responses associated with SUD stigma is limited by the fact that it typically does not dissociate among SUD types. Beliefs underlying SUD stigma differ across SUD types, making this an important direction for future exploration.

Some work on SUD stigma has also examined anger, given its relationship to beliefs about controllability (Angermeyer et al., 2004; P. W. Corrigan, 2000). In one study, participants completed a survey that explored multiple affective responses toward SUD, including anger, fear, and disgust (Nieweglowski et al., 2019). They found that SUD was most strongly associated with affective responses related to fear, followed by affective responses associated with anger. An important caveat to this finding is that SUD was defined generically ("people who abuse substance like drugs or alcohol"), thus obfuscating potentially key differences among substance types. However, the fact that there was a strong association between SUD and fear could shed light on the higher levels of stigma generally expressed toward SUD. Specifically, although both fear and anger responses exacerbate discriminatory behaviors (e.g., avoidance), fear has been implicated as the largest contributor of the two (Angermeyer et al., 2004; Angermeyer & Matschinger, 2003a; P. W. Corrigan, 2002).

Although direct comparisons of the affective responses to SUD and mental illness are scarce, an important consideration is that, as discussed in the previous section, individuals with SUD and some mental illnesses (e.g., schizophrenia) are considered to be dangerous (Brown et al., 2015; Janulis et al., 2013; McGinty et al., 2015; Perry et al., 2020; Pescosolido et al., 1999), although individuals with SUD are disproportionately more likely to be perceived as dangerous than those with mental illness (P. W. Corrigan et al., 2009; McGinty et al., 2015). Importantly, SUD is generally also viewed as more controllable than mental illness (P. W. Corrigan et al., 2009; Link et al., 1999; McGinty et al., 2015; Perry et al., 2020), suggesting that SUD may elicit feelings of both fear and anger, which could contribute to its increased stigmatization. Given the relative paucity of work comparing the affective responses between SUD and mental illness, as well by SUD types, future work should clarify the affective responses associated with distinct SUD conditions and how those contribute to their stigmatization.

Other affective responses to mental illness and SUD

In addition to fear and anger, a small body of social psychological research has examined other affective responses, notably disgust and contempt, associated with SUD stigma (Boysen et al., 2023; Fiske, 2012;

Nieweglowski et al., 2019; Sadler et al., 2015). This work has primarily examined SUD stigma through the lens of the stereotype content model (Boysen et al., 2020, 2023; Fiske, 2012; Görzig & Ryan, 2022; Sadler et al., 2012). This model characterizes SUD as among the most highly stigmatized conditions, similar to being homeless or poor (Sadler et al., 2012), and demonstrated that such conditions generally elicit disgust (Fiske, 2012; Fiske et al., 2002). However, there are important limitations to this approach. Specifically, these models either focus specifically on mental illness (Fiske, 2012) or include SUD only in generic terms (e.g., "addictions"; Sadler et al., 2012). They therefore lack a comprehensive and sufficiently specific framework for understanding SUD stigma.

Indeed, other work has shown that SUD activates stronger feelings of resentment and contempt but weaker feelings of pity (Nieweglowski et al., 2019). However, other than fear and anger, one of the most studied affective responses to SUD has been disgust. A key finding here is that individuals with SUD (generally defined in this work as "addiction") elicit disgust, whereas individuals with depression, anxiety, and eating disorders are more likely to elicit pity (Boysen et al., 2023; Fiske, 2012; Sadler et al., 2012). Thus, SUD may result in greater rejection, whereas mental illness (e.g., depression) may be more tolerated (Fiske, 2012).

One reason for the relatively limited work on affective responses associated with SUD stigma might be that perceivers are unwilling or unable to identify, label, and/or distinguish their affective responses toward individuals with specific conditions. Indeed, accurately capturing the underlying cause of individuals' behavior is difficult from self-report (Nisbett & Wilson, 1977). Because gaining accurate insight into individuals' affective responses is particularly challenging, social psychologists often rely on measures of people's implicit (unconscious) attitudes. Indeed, this work has shown that an individual's explicit (conscious) and implicit attitudes toward stigmatized groups generally do not agree (Charlesworth & Banaji, 2019; Dovidio et al., 1997), and such groups include individuals with mental illness (Peris et al., 2008). Specifically, implicit attitudes tend to reflect more negative bias than explicit attitudes (Charlesworth & Banaji, 2019) Indeed, some work has shown that implicit and explicit attitudes have disparate predictions for prognoses and diagnoses of mental illness (Peris et al., 2008), suggesting that there are important implications for correctly characterizing people's affective attitudes toward individuals with mental illness and SUD.

In addition to challenges associated with correctly identifying their affective beliefs toward individuals with mental illness or SUD, it may be difficult for perceivers to quantify the relative strength of their affective responses across conditions (e.g., "I am more afraid of *X* condition than *Y*"), making it difficult to examine whether there are differences between the magnitude of negative affective responses to individuals with mental illness and SUD. Moreover, research attempting to characterize the affective attitudes that drive mental illness or SUD stigma are generally constrained by which attitudes are measured (e.g., fear, anger). Thus, affective responses that are not measured (e.g., disgust) are not characterized because behavioral approaches lack the sensitivity to detect them.

Neuroimaging research is well suited to address these challenges because the brain regions associated with distinct affective responses (e.g., fear, anger, disgust) to stigma have been well characterized (Amodio, 2014; Amodio & Cikara, 2021). Moreover, these brain regions are engaged when participants passively view images of stigmatized individuals (Cassidy & Krendl, 2018; Krendl & Cassidy, 2017; Krendl et al., 2006), which reduces potential constraints associated with relying on participants' self-reports or anticipating the affective responses that should be measured. Several neuroimaging studies have addressed mental illness and SUD stigma (Cassidy & Krendl, 2018; L. T. Harris & Fiske, 2006; Krendl et al., 2006, 2009, 2017), providing additional insight into the unique affective responses that may dissociate mental illness from SUD stigma.

Neuroimaging evidence on affective responses is associated with mental illness and SUD stigma

Over the past two decades, researchers in the field of social neuroscience have identified a set of brain regions that underlie stigma, including those underlying perceivers' affective responses (Amodio, 2014; Amodio & Cikara, 2021). A key finding across this work is that the nature of affective responses differs across stigmatized conditions and contexts but generally includes emotions such as fear (reflected in heightened activation in the amygdala) and disgust (reflected in heightened activation in the insula; Amodio, 2014; Krendl et al., 2006). Affective responses may occur in conjunction with or separately from controlled processes (e.g., mentalizing). Control processes are generally viewed as playing an important role in attenuating affective responses (Amodio & Cikara, 2021; Denny et al., 2012; Van Overwalle, 2009). It is important to note that despite some critiques that neuroimaging interpretations are susceptible to reverse inference, shifts in the methodological and analytical approaches in the field over the past decade have improved its predictive ability and rigor, thereby largely mitigating these concerns (Poldrack, 2011).

Dissociating between affective and controlled processes is important for two reasons. First, it can reveal whether the two processes are separable or concurrent (e.g., Dovidio et al., 2000). Second, it can identify the specific mechanism underlying SUD stigma. For example, if SUD elicits a strong negative affective response without an associated cognitive response, interventions should target that specific affective response rather than try to engage a cognitive response (e.g., regulation, perspective-taking). However, if SUD elicits an increased cognitive response (e.g., mentalizing), then interventions that promote that response (e.g., perspective-taking) might be more effective at reducing stigma than interventions that target people's affective responses. These interventions typically ask participants to spend a few minutes writing about a stigmatized target (e.g., describing an average day) from their own perspective (e.g., Gloor & Puhl, 2016; Tompkins et al., 2015). For example, in one study, participants either (a) watched an interview with an expert on children with "gender identity disorder" and wrote down what they remembered (control condition) or (b) watched a video about a child who was transgender and then wrote a letter from the child's perspective to their parents to disclose that they were transgender (perspective-taking; Tompkins et al., 2015). In this study, the perspective-taking condition, relative to the control condition, reduced prejudice and decreased desired social distance.

Although the preponderance of social neuroscience research on stigma has focused on race (Amodio, 2014; Amodio & Cikara, 2021), a few studies have examined the domain of mental illness (Cassidy & Krendl, 2018; Krendl & Cassidy, 2017; Shin et al., 2020) and/or SUD (L. T. Harris & Fiske, 2006; Krendl et al., 2009, 2012). Because studies that include both mental illness and SUD generally group the conditions together, no studies have directly compared mental illness with SUD. A general finding from neuroimaging work is that passively evaluating images of individuals with SUD is associated with increased activation in brain regions related to fear (Krendl et al., 2009) and disgust (L. T. Harris & Fiske, 2006; Krendl et al., 2006). Moreover, SUD is detected relatively quickly (within one third of a second) and elicits a heightened and prolonged negative affective response (Krendl et al., 2017). However, there are two important caveats to these studies. First, SUD is broadly defined in these studies (e.g., alcohol dependence, illicit drug use), which may conflate the brain response across SUD types. Second, SUD is often grouped together with other highly negative stigmatized groups (e.g., homeless individuals; L. T. Harris & Fiske, 2006; Krendl et al., 2012, 2017), thus potentially biasing the neural response.

Prior work examining the neural responses underlying mental illness been yielded mixed findings when dissociating different conditions (Cassidy & Krendl, 2018; Shin et al., 2020). For example, one study found increased activation in neural regions associated with negative affect (insula) and cognitive control (dorsal anterior cingulate) when perceivers evaluated images of individuals with mental illness (broadly defined as someone with schizophrenia, depression, paranoid disorder, or obsessive compulsive disorder; Shin et al., 2020). However, another study focused specifically on perceivers' neural response to viewing images of individuals who were ostensibly depressed and found that these images elicited heighted activation in brain regions associated with mentalizing (dorsal medial prefrontal cortex) but not negative affect (Cassidy & Krendl, 2018; Krendl & Cassidy, 2017). One potential explanation for these discrepant findings is that some studies collapsed data across mental illness conditions (Shin et al., 2020), whereas the other studies focused specifically on depression (Cassidy & Krendl, 2018; Krendl & Cassidy, 2017). This is important because if one condition (e.g., schizophrenia) elicits a relatively strong neural response but another condition elicits a relatively weak response from the same brain region (e.g., depression), these would average into a moderate negative response. If this is the case, similar discrepancies will likely emerge in SUD research, highlighting the need to dissociate by SUD type in future research.

It is also important to note that there is a key methodological difference in the extant neuroimaging research on mental illness and that on SUD. Specifically, SUD is typically depicted using images of people engaged in actions such as consuming alcohol or using illicit drugs (Krendl et al., 2009), whereas mental illness is typically depicted through labeling (e.g., presenting an image of someone with an explicit label about their condition). A limitation to this approach is that labels (e.g., "schizophrenia," "depression") activate negative beliefs and attitudes about the condition, which can influence the nature and magnitude of stigma (Link et al., 1989; Pescosolido & Martin, 2015). For this reason, national surveys examining mental illness and SUD stigma often avoid labels (Krendl & Perry, 2022; Perry et al., 2020; Pescosolido et al., 1999), relying instead on vignette approaches to provide more direct measures of stigma. In a striking example of the power of labels on brain activity, one neuroimaging study arbitrarily labeled individuals as suffering from depression or migraines by placing images of faces on differently colored backgrounds that had ostensible diagnostic meaning (Cassidy & Krendl, 2018). Although this pairing was arbitrary, the labels altered people's basic mental representations of depression. Thus, these differences

may also play an important role in accurately characterizing the neural response underlying mental illness and SUD stigma.

Future directions

Together, the neuroimaging studies on mental illness and SUD stigma suggest that there is a powerful affective response to mental illness and SUD, which may be particularly pronounced for SUD. However, future work should examine different SUD conditions separately to disentangle the magnitude and mechanism of this response. Moreover, concurrent behavioral work that extends beyond focusing specifically on anger and fear may shed additional light on the affective responses associated with SUD. However, it will be important for this and related work to discriminate between SUD conditions.

Reducing negative attitudes toward stigmatized groups is challenging, but some emerging work suggests that targeting structural stigma may be an important step toward shifting those attitudes. For example, several studies have shown that legalizing same-sex marriage was associated with widespread reductions in explicit and implicit antigay bias (Flores & Barclay, 2016; Ofosu et al., 2019). U.S. Supreme Court decisions regarding racial desegregation, interracial marriage, rights to birth control, and same-sex marriage have also been associated with subsequent shifts in public opinion supporting these previously controversial rights (Marshall, 1987; Ofosu et al., 2019). Although the Supreme Court is one mechanism through which structural shifts can occur, it is important to note that public opinion does not always align with the Supreme Court's decisions (Adamczyk et al., 2020; Marshall, 1987). Alternatively, other structural factors, such as the media and policy changes (e.g., legalizing marijuana use or same-sex marriage), can also positively influence public attitudes (Ofosu et al., 2019; Stringer & Maggard, 2016).

An important takeaway from this section is that because mental illness and SUD elicit distinct affective responses, their respective stigma-reduction efforts should be distinct and separable. In other words, efforts to classify SUD as a mental illness (e.g., through *Diagnostic and Statistical Manual of Mental Disorders* criteria or education) may backfire by increasing stigma toward non-SUD mental illnesses or by reducing the credibility of the messaging. These findings also suggest that efforts to shift these affective responses should leverage approaches that are effective for changing people's attitudes. Borrowing from the social psychological research, persuasion can be effective in shifting attitudes and changing behavior, particularly when framed in a personally relevant manner (Petty & Cacioppo, 1986; Petty et al., 1981).

Developing models of the affective responses that mediate the relationship between beliefs and SUD stigma is an important avenue for classifying and attenuating discriminatory responses toward these individuals. In service of this goal, in the next section, we consider interventions that may target the beliefs and affective responses that drive mental illness and SUD stigma.

Developing Interventions That Are Effective in Reducing Stigma Toward Mental Illness and SUD

The extensive cross-disciplinary research examining interventions that reduce mental illness and SUD stigma have yielded mixed findings (Alexander & Link, 2003; Chiesa & Serretti, 2014; P. Corrigan et al., 2017; P. W. Corrigan et al., 2012; Couture & Penn, 2003; Donker et al., 2009; Griffiths et al., 2014; Livingston et al., 2012; Maunder & White, 2019; Morgan et al., 2018; Thornicroft et al., 2016; Yanos et al., 2015). Although these studies have identified strategies that may be effective in reducing stigma, notably psychoeducation (Donker et al., 2009) and intergroup contact (Alexander & Link, 2003; P. W. Corrigan et al., 2012; Maunder & White, 2019), they have had limited success (Krendl & Perry, 2022; Maunder & White, 2019; McGinty et al., 2015, 2018; Morgan et al., 2018; Paluck et al., 2019). Possible reasons include relatively small sample sizes, unnaturalistic manipulations, and inconsistencies in terminology (e.g., contact with an individual "with mental illness" versus contact with an individual with depression; Mehta et al., 2015; Perry et al., 2022; Thornicroft et al., 2016). However, weak intervention results may also suggest that we need to design more effective methods for reducing stigma for all mental illness and SUD types.

An additional limitation in this work is that it has generally focused on stigma reduction as the primary outcome, largely overlooking the mechanisms by which stigma is reduced (Thornicroft et al., 2016). This focus may explain, at least in part, why stigma reductions are observed in the short term but are less evident in the long term (Morgan et al., 2018; Thornicroft et al., 2016). Relatedly, these studies generally focus on reducing public stigma (P. W. Corrigan et al., 2012; Couture & Penn, 2003; Morgan et al., 2018; Parcesepe & Cabassa, 2013) and, to a lesser extent, self-stigma (Birtel et al., 2017; Yanos et al., 2015), but they focus only to a limited extent on structural stigma (Haugen et al., 2017; Lien et al., 2021).

Using psychoeducation to reduce mental illness stigma

Psychoeducational interventions involve providing factual information about mental illness or SUD to

contradict prevalent but inaccurate beliefs about the conditions. Such interventions range from emphasizing the negative impact that stigma has on the lives of people with SUD or mental illness to providing information about how to interact with or support individuals with mental illness or SUD (Bielenberg et al., 2021; P. W. Corrigan et al., 2012; Morgan et al., 2018). One of the most common approaches in psychoeducation interventions is to educate individuals about the biological causes of stigmatized disorders (P. W. Corrigan et al., 2017; Kvaale et al., 2013). In these cases, psychoeducation can reduce perceptions of controllability by reframing mental illness or SUD as diseases rather than as a temporary emotional state or a lapse in control. Here, psychoeducation may be optimal when applied to illnesses that are stigmatized for their controllability but not for other reasons (e.g., their perceived dangerousness). Indeed, psychoeducation has been consistently shown to improve mental health literacy (Mehta et al., 2015; Phelan et al., 2000), suggesting that it meets its narrow goal of increasing knowledge of biomedical causes of mental illness and SUD. However, an important caveat to reducing perceptions of controllability is that this can also inadvertently reduce perceptions of changeability, as discussed in the second section (Lebowitz & Appelbaum, 2017). We will revisit this point shortly.

On the whole, results are mixed with respective to the effectiveness of psychoeducation in reducing mental illness stigma (P. W. Corrigan et al., 2012; Donker et al., 2009; Henderson et al., 2014; Kvaale et al., 2013), and relatively little work has examined its effect on SUD stigma (Bielenberg et al., 2021; P. W. Corrigan et al., 2017; Livingston et al., 2012). For example, one study found that psychoeducation was effective only in reducing mental health stigma among health-care professionals if they had minimal or no mental health training (Henderson et al., 2014). Health-care professionals may already have higher mental health literacy than the general population and thus may not benefit from additional education. In fact, a recent national survey found that health-care professionals are more likely to attribute SUD to biological factors (e.g., genetics)—suggesting better literacy—but have similar levels of SUD stigma as the general population (Hamilton et al., 2023). Meta-analyses have found that psychoeducation is effective in reducing mental illness stigma for adolescents but is less effective for adults (P. W. Corrigan et al., 2012). Moreover, when these interventions are effective for adults, their medium- to long-term stigma-reduction effects persist primarily for family members of individuals with mental illness (Morgan et al., 2018). Another meta-analysis found that psychoeducation did not reduce mental health stigma (Kvaale et al., 2013)

and, in some cases, receiving this intervention was associated with higher stigma (Kvaale et al., 2013; Larkings & Brown, 2018). With respect to SUD stigma, one meta-analysis found that psychoeducation was more effective in reducing SUD stigma when paired with other (e.g., contact-based) interventions (Livingston et al., 2012), whereas a more recent meta-analysis found that contact-based, but not psychoeducation, interventions were effective in reducing SUD stigma (Bielenberg et al., 2021). Regardless, a key takeaway is that psychoeducation interventions alone are likely not effective in reducing SUD stigma. If they are used, they should be paired with other interventions, such as contact-based interventions.

One possibility for these nuanced and conflicting results may be that psychoeducation targets only some of the mechanisms underlying public stigma. Specifically, although psychoeducation may reduce beliefs about controllability underlying mental illness or SUD stigma, it may not address other stigma-related beliefs. For example, some work has shown that psychoeducation can reduce the blame that targets place on individuals with mental illness, thereby reducing beliefs about the perceived controllability of their illness (Kvaale et al., 2013). If that is the case, it may be effective in reducing stigma only when it is driven by controllability but not when other beliefs (e.g., beliefs about dangerousness or disruptiveness) influence perceptions. Moreover, shifting beliefs about controllability can reduce perceptions that the condition is changeable, which can limit support for treatment and increase stigma (Lebowitz & Appelbaum, 2017). Because SUD is generally perceived as more changeable than mental illness (P. W. Corrigan et al., 2006; Perry et al., 2020), psychoeducation interventions that threaten its perceived changeability could potentially backfire and should be used with caution.

The impact of psychoeducation on reducing self-stigma has been less widely studied. However, social psychological research posits that framing these interventions in a way that maximizes their personal relevance would be critical to their success (Petty & Cacioppo, 1986; Petty et al., 1981). There are several ways to do this, including by pairing psychoeducation with biographies or testimonials from other individuals (e.g., famous people) who have undergone treatment. Prior studies employing this strategy have had varying degrees of success in reducing stigma (Alvidrez et al., 2009; Griffiths et al., 2004). One reason is that including testimonials from individuals with whom participants cannot easily identify (e.g., celebrities) may minimize the effectiveness of the messaging (Terry & Hogg, 1996; White et al., 2009). One study found that Black men were more receptive to psychoeducation when it was paired with biographies of Black men who had sought

mental health treatment that when it was paired with an information-only control text, although some nuances emerged in this work (Alvidrez et al., 2009; Griffiths et al., 2004). Another study found that male-targeted brochures improved men's attitudes toward help-seeking and reduced stigma to the greatest extent, likely because this framing was the most accessible (Hammer & Vogel, 2010).

Together, these studies suggest that psychoeducation can be beneficial but should be used with caution, especially for SUD, given its mixed and sometimes detrimental effects on stigma. In general, interventions that target a broad array of negative beliefs and emotions surrounding stigmatized disorders are likely to be maximally effective. Moreover, psychoeducation may be more effective in reducing SUD stigma when paired with other (e.g., contact-based) interventions (Livingston et al., 2012), although additional work is needed to evaluate whether psychoeducation is effective on the basis of the specific condition type. This kind of foundational work is critical for informing stigma-reduction education that avoids unintended negative consequences.

Using intergroup contact to reduce mental illness and SUD stigma

One of the most widely studied strategies for reducing mental illness and SUD stigma is intergroup contact (Bielenberg et al., 2021; P. W. Corrigan et al., 2012; Couture & Penn, 2003; Mehta et al., 2015). The premise of intergroup contact is that nonstigmatized individuals will experience reduced stigma after they have a positive interaction with a member of a stigmatized group (Pettigrew et al., 2011). Intergroup contact has been widely shown to reduce stigma across multiple domains, including race, age, and sexual orientation (Allport, 1954; Pettigrew & Tropp, 2006; Sherif, 1966), although more recent work raises questions about the magnitude of its effects (Paluck et al., 2019). Intergroup contact increases knowledge about the stigmatized group, reduces anxiety, and increases empathy toward members of the stigmatized group (Pettigrew & Tropp, 2008). It also normalizes the stigmatized condition, which may make it more socially acceptable (Ata et al., 2009; Cameron et al., 2011; Turner et al., 2008). Although not directly examined, intergroup contact may also be effective in reducing stigma because it reduces concerns about dangerousness and/or disruptiveness.

The impact of intergroup contact on mental illness stigma has been examined both as a basic research question (e.g., through laboratory studies) and as a potential intervention tool (e.g., through randomized controlled trials; Bielenberg et al., 2021; P. W. Corrigan et al., 2012, 2017; Couture & Penn, 2003; Maunder &

White, 2019; Mehta et al., 2015). With respect to mental illness, laboratory research introduces contact in two key ways: through experimental manipulations (e.g., using in-person interactions or videos) or through self-reports of previous contact (for reviews, see P. W. Corrigan et al., 2012; Couture & Penn, 2003). Overall, these studies suggest that contact reduces mental illness stigma, but the magnitude of these effects is highly variable and important nuances emerge across studies. For example, one review found that in-person contact is more effective in reducing mental illness stigma than video-based contact (P. W. Corrigan et al., 2012). However, another review found that in-person and video-based contact have similar effects on reducing mental illness stigma, although it is unclear whether these effects persist over time (Maunder & White, 2019). Some experimental work has found that in-person contact reduces stigma for individuals with relatively high mental health concerns (Desforges et al., 1991), but other studies have found that contact reduced mental illness stigma only when individuals liked the person with whom they interacted (Stelzmann et al., 2021). One of the few studies on SUD stigma (specifically, cocaine addiction) found that contact did not shift stigma (P. W. Corrigan et al., 2001).

Observational studies have found that negative beliefs about mental illness (e.g., perceived dangerousness) are lower among individuals who self-report having previously interacted with an individual with mental illness (Couture & Penn, 2003), although these studies do not dissociate between the frequency and quality of contact, which could have dissociable effects on stigma. The few studies examining the effect of contact on SUD stigma have similarly measured contact via self-report, although results have been mixed. A recent national study found that previous contact reduced SUD stigma, the most pronounced effects being for health-care providers (Hamilton et al., 2023). Another study found that stigma toward opioid use disorder was lower among individuals who had previously been in contact with an individual with opioid use disorder (Gourley & Krendl, 2023). However, another study found that prior contact was associated with greater SUD stigma (Kennedy-Hendricks et al., 2017). One potential explanation for these discrepancies is that observational approaches discount everyday experiences that might exacerbate or attenuate stigma, such as the quality and strength of an individual's relationship with individuals with SUD (Perry et al., 2022).

Empirical work on interventions leveraging intergroup contact have incorporated mental illness and SUD stigma but again yielded mixed findings. A randomized controlled trial with college students found that higher levels of direct contact (e.g., having a discussion or

engaging in a cooperative task) yielded greater reductions in mental illness stigma than video-based contact (Gao & Ng, 2021). Larger scale interventions, such as Time to Change in England, found that antistigma events promoted contact and reduced negative behavioral intentions but did not increase individuals' willingness to disclose their own mental health concerns (Evans-Lacko, London, et al., 2012). Contact interventions have been less widely studied for SUD, although the few that have emerged have focused primarily on health-care providers (Bielenberg et al., 2021; Gourley & Krendl, 2023; Kennedy-Hendricks et al., 2017). A recent review of these interventions found that contact was effective in reducing SUD stigma among health-care providers (Bielenberg et al., 2021). Future work should expand this work to the general population.

In everyday life, the duration and quality of the contact in one's personal network cannot be experimentally controlled. This is important because a central tenet of intergroup contact is that it must be prolonged, positive, and with someone who is of equal status (Allport, 1954). For individuals interacting with family members who suffer from SUD, contact may result in negative or burdensome experiences that reduce its effectiveness. Indeed, as mentioned earlier, a recent study found that individuals with SUD are disproportionately identified as more likely to cause problems in personal social networks (Railey et al., 2023), suggesting that everyday experiences may overshadow the impact of a contact intervention. Similarly, health-care workers whose contact is limited to clinical settings may see someone with SUD at their worst (resulting in a negative interaction). This disparity could explain, at least in part, why some studies have found that contact is effective only in reducing health-care providers' stigma when it is with friends or family members with mental illness (Henderson et al., 2014).

An important logistical barrier of implementing contact-based interventions outside of the laboratory is that may not be feasible at a large scale because they are resource intensive to implement (but see Pescosolido et al., 2020). Efforts to circumvent this barrier include using imagined (vs. actual) contact (Dovidio et al., 2011), which has, in some cases, been associated with lower mental illness stigma (Brown et al., 2010; Maunder & White, 2019). However, imagined contact has not been shown to be effective for all groups (Vinson et al., 2016), raising questions about its generalizability and potential impact, particularly for SUD.

Another limitation to implementing intergroup contact interventions in real-world settings is that individuals who are most likely to engage in contact are those whose level of stigma is already relatively low (Vogel et al., 2007). A recent study presented an interesting approach to this problem. The study was a campus-wide intervention implemented over a 2-year period and designed to reduce stigma by promoting mental health awareness (Pescosolido et al., 2020). Using pre-test–posttest measures of stigma, the researchers found that the intervention was associated with an 11% to 14% decrease across multiple domains of stigma. Moreover, mere passive exposure to the intervention (e.g., awareness of but not necessarily engagement with the campaign) predicted reductions in stigma. Interestingly, stigma reduction was associated with more intergroup contact. Critically, having more positive perceptions of the campus culture mediated the relationship between contact and stigma reduction (Manago & Krendl, 2023).

Finally, a unique challenge to reducing SUD stigma via intergroup contact is that SUD stigma is generally viewed as relatively socially acceptable in society (P. Corrigan, 2004), which may make it more resistant to change. In contrast, much of what we know about the strong, positive impact of intergroup contact in general comes from research on interactions between racial groups, where stigma and discrimination is largely non-normative. Shifting beliefs about what is considered normative behavior may therefore be an important strategy for increasing the public's willingness to engage in meaningful and prolonged social contact with individuals with mental illness or SUD. In the next section, we consider shifting social norms as a potential alternative intervention strategy for reducing stigma.

Using a social-norms approach to promote contact with individuals with mental illness and SUD

Social norms refer to the implicit and explicit rules a group has about acceptable values, behaviors, and beliefs of its members. In essence, social norms are the unwritten rules that tell us how to behave in certain situations. Classic research in the field of social psychology has shown that people tend to conform to social norms (Asch, 1956; Cialdini & Goldstein, 2004; Milgram et al., 1969; Sherif, 1936) because doing so promotes social acceptance (Chartrand & Bargh, 1999; Cialdini & Goldstein, 2004). Several decades of social psychological research have shown that changing social norms is a highly effective way to alter behavior (Agostinelli et al., 1995; Larimer et al., 2004; Reno et al., 1993; Schultz et al., 2008; Steffian, 1999), including reducing stigma (Blanchard et al., 1994; Stangor et al., 2001; Zitek & Hebl, 2007).

A broad literature has used a social-norms approach to change health behaviors, such as reducing binge drinking on college campuses. Here, a social-norms

approach would involve changing students' perceptions about normative drinking behavior, or what is considered acceptable amounts of alcohol to consume (Agostinelli et al., 1995; Borsari & Carey, 2003; Larimer et al., 2004; Steffian, 1999). For example, Agostinelli and colleagues (1995) randomly assigned heavy drinkers on college campuses to receive (or not to receive) personal feedback about their own alcohol consumption relative to the average number of drinks consumed by other students on campus. The feedback condition was designed to shift students' perceived social norms about what constituted acceptable drinking behavior among their peers and resulted in their consuming less alcohol relative to individuals in the no-feedback condition.

Other studies have used a social-norms approach to reduce stigma (Blanchard et al., 1994; Stangor et al., 2001; Zitek & Hebl, 2007). This work leverages the theory that people's beliefs and behaviors are strongly linked to the perceived beliefs and behaviors of others (Berkowitz, 2003). Individuals who perceive that others hold negative beliefs about people with mental illness or SUD (i.e., that stigmatization is normative) are themselves more likely to reject and devalue those groups. Thus, some interventions attempt to portray stigmatization as nonnormative using exposure to people expressing positive views or having positive experiences of people with stigmatized conditions (Botha et al., 2017). For example, Stangor and colleagues (2001) found that when people were told that their use of stereotypes about Black individuals was higher than the norm, they stereotyped them less. However, an important caveat to this finding is that people also increased their use of stereotypes when they were told that their reliance on stereotypes was lower than the norm. This work has also been applied to reducing mental illness stigma by using videos that depict friends and family members of people with mental illness describing their positive experiences with loved ones (Botha et al., 2017; Hackler et al., 2016). An important benefit of a social-norms approach is that it has been shown to have a long-lasting impact on stigma reduction (Stangor et al., 2001; Zitek & Hebl, 2007), so this may be an important area for future work.

Shifting social norms may explain why self-stigma is reduced when people in recovery interact with peers who have also experienced a mental illness or SUD (Yanos et al., 2015). For example, there is a small but growing line of research examining the work of peer educators or specialists, whose aim is to increase treatment engagement and reduce self-stigma by normalizing mental illness experiences. Peer specialists are individuals who have themselves experienced mental illness, and their role is to support and educate

individuals in treatment for mental illness for the first time or who are experiencing acute periods of distress (Repper & Carter, 2011). Peer specialists are trained to take a holistic and patient-centered view of mental illness that normalizes human suffering, locating its causes outside the individual (e.g., in experiences of trauma), rather than emphasizing a biomedical perspective that treats it as abnormal (Barlott et al., 2020; Davidson & Roe, 2007). Many of these programs have been found to reduce internalized stigma among participants, although research is not conclusive (Burke et al., 2019; S. A. McKinnon et al., 2019). It is likely that peer programs reduce stigma (a) by reframing mental distress to normalize it and locate responsibility in external social environments and (b) by reducing stigma-related beliefs about people with mental illness through meaningful social contact with individuals with the same or a similar diagnosis. Although the question of whether peer educators could improve treatment-seeking for individuals with SUD has been largely unexplored, future work should consider this possibility. An important caveat to peer educator approaches is that they are resource intensive. A more scalable alternative may be using peer-led groups to reduce stigma—an approach that has been found to be effective in a handful of studies (Bulanda et al., 2014).

Perhaps the most systematic and scalable approach to changing social norms might be through a social network intervention, although this approach has not been leveraged to reduce stigma. *Network interventions* are defined as "purposeful efforts to use social networks or social network data to generate social influence, accelerate behavior change, improve performance, and/or achieve desirable outcomes among individuals, communities, organizations, or populations" (Valente, 2012, p. 49). Typically, network interventions have one of two novel features. On one hand, they may use social network analysis to identify the key players or community opinion leaders who are in the best structural position to maximize dissemination of new social norms and behavior change and then make them change agents. On the other hand, they may enlist dyads or groups to engage in behavioral or normative change together to exert social regulation and produce social rewards (Latkin & Knowlton, 2015; Valente, 2012). In both cases, these individuals model behavior, provide social support, and engage in verbal persuasion regarding normative attitudes, beliefs, and behaviors. Some existing effective interventions employ strategic disclosure of one's condition to reduce public stigma and to empower people with mental illness and SUD (P. W. Corrigan & Rao, 2012; Kundert & Corrigan, 2021; Modelli et al., 2021). These interventions could be scaled up, multiplying their impact, by integrating a network intervention

approach that incorporates allies as change agents to alter the normative social context. By saturating their personal social networks with information and modifying social norms, change agents could reinforce the positive potential of their own social environment to support sustained perceptual and behavioral change toward loved ones experiencing mental illness or SUD.

There are several key takeaways from the literature reviewed in this section. First, shifting social norms is at least one mechanism by which intergroup contact reduces stigma. Second, although contact is highly effective in reducing stigma, there are several practical and logistical barriers that make it difficult to implement on a large scale. Third, interventions that focus on shifting social norms (with the goal of promoting contact) may be effective workarounds to these barriers, especially if employed in the context of a network intervention that leverages people's natural social connections to disseminate normative change.

Emphasizing recovery to reduce mental illness and SUD stigma

Given our earlier discussions about the role of changeability in SUD stigma, another intriguing intervention strategy for reducing SUD stigma is to emphasize recovery. As previously discussed, some work suggests that SUD is viewed as a changeable condition (P. W. Corrigan et al., 2006; Pachankis et al., 2018; Perry et al., 2020), and these beliefs may be reinforced by media depictions of people with untreated and active SUD that transmit the message that addiction is permanent and untreatable (McGinty et al., 2019). These ingrained beliefs seem to be relatively impervious to manipulations that try to reduce blame (e.g., through psychoeducation). Rather than directly challenging controllability beliefs to reduce blame, an alternative approach is to accept the belief and emphasize recovery (changeability) instead.

Prior work suggests that no longer having a condition reduces negative attitudes toward people in formerly stigmatized categories (Black et al., 2014; Hoyt et al., 2019). Additionally, survey experiments comparing public attitudes toward a vignette character who either is an active substance user or is being successfully treated for addiction found significantly higher levels of stigma toward the former group (Krendl & Perry, 2022; McGinty et al., 2015; Phillips & Shaw, 2013). A recent study used a vignette-based approach to characterize the nature and magnitude of stigma toward four different SUD types among a nationally representative group of U.S. adults, some of whom were depicted as active users, others as being in active recovery (Krendl & Perry, 2022). The results showed that stigma was consistently lower when individuals were described as in recovery compared with when they were described as actively using drugs.

Recovery also had a stronger effect in reducing stigma toward illicit substances (e.g., methamphetamine) than legal substances (e.g., alcohol). Moreover, recovery had particularly pronounced effects on respondents' willingness to interact with the target individual in the workplace or willingness to have them marry into the family—both key domains in which SUD stigma has been shown to be particularly pronounced (Krendl & Perry, 2022; Perry et al., 2020). Specifically, more than two thirds of respondents indicated that they would be unwilling to work with someone who has an active dependence, but only a quarter of respondents indicated that same unwillingness if the individual were in recovery. Together, these results suggest that emphasizing recovery may be an effective strategy for reducing SUD stigma.

An important caveat to emphasizing recovery is that it could have the unintended consequence of exacerbating stigma by increasing perceptions that individuals with SUD are responsible for their addiction. Thus, this framing may be more effective in reducing self-stigma (by improving individuals' self-efficacy) but could exacerbate public and structural stigma (by exacerbating controllability beliefs). Future work should examine these possibilities and identify the costs and benefits of messaging that emphasizes recovery from SUD.

Leveraging social and health policy to reduce mental illness and SUD stigma

An alternative to individual-focused interventions and approaches to reducing the stigma associated with mental illness and SUD is to eliminate the social, organizational, and policy conditions that create and reinforce stigma at the macro level. For example, a recent meta-analysis found that psychotherapies with Black youth were less effective in states with higher levels of structural racism, suggesting that structural racism disrupts the efficacy of interventions (Price et al., 2022). Thus, intervening with people who express stigmatizing views (i.e., public stigma) and attempting to prevent stigmatizing attitudes and discriminatory practices by targeting health and social policy change (i.e., structural stigma) are both critical for successfully reducing mental illness and SUD stigma. Simply put, these two levers of stigma reduction are not independent—public and structural stigma are mutually reinforcing (McGinty & White, 2022).

Promoting policies that eliminate structural barriers to treatment and support harm-reduction initiatives is a promising direction for reducing public stigma

(McGinty et al., 2018). Indeed, a study of 14 European countries found that mental illness stigma was lower among individuals who lived in countries that had lower public stigma and greater access to information about mental health (Evans-Lacko, Brohan, et al., 2012). However, an important caveat to this work is that a preponderance of the cross-cultural studies on mental illness stigma have been conducted in relatively high-income countries (Guzmán et al., 2019). Structural barriers may be even more pronounced in lower income countries that have fewer resources to support mental health treatment. Regardless, reducing structural stigma likely contributes to stigma reduction and should be considered in future work. Major funding initiatives are needed to address persistent barriers experienced by people with mental illness and SUD, including inadequate insurance coverage, health provider shortages, and lack of access to evidence-based treatments (e.g., office-based MOUD) and support programs (Judge David L. Bazelon Center for Mental Health Law, 2011; Mental Health America, 2016; National Alliance on Mental Illness, 2015). At the same time, harm-reduction strategies can be implemented to reduce the negative consequences of drug use (Marlatt et al., 2011). Effective harm-reduction strategies include syringe exchange programs, safe injection sites, and widespread naloxone distribution. These policies have been shown to increase engagement with treatment, promote recovery and community integration, reduce HIV and hepatitis transmission, and save lives (Abdul-Quader et al., 2013; Potier et al., 2014; Ritter & Cameron, 2006).

Research on policy feedback suggests that the enactment of public policies has a significant influence on public stigma (Pierson, 1993). Policies that mandate equity (e.g., insurance coverage parity for physical and mental health services) or promote harm-reduction initiatives send strong messages to the public about the worthiness of the targeted population. This effect has been shown in myriad work, including recent studies showing that the legalization of same-sex marriage was associated with widespread reductions in antigay bias (Flores & Barclay, 2016; Ofosu et al., 2019). The limited work on the effects of policy on attitudes toward SUD has focused on marijuana use, finding that its legalization has been associated with shifts toward more positive attitudes, but primarily for medical (not recreational) use (Tanco et al., 2019). Together, these studies suggest that public policies and programs may shift social norms, conveying that people with mental illness or SUD deserve equal access to resources and that their lives are valuable (Livingston, 2020). Likewise, policies that reduce barriers to treatment highlight structural factors that contribute to negative outcomes, including those that inhibit recovery, that must be addressed at the macro level. This kind of policy shifts blame for treatment delays, relapses, and other adverse consequences (e.g., unemployment, homelessness) to the treatment system or to broader gaps in the health and social safety net (Cheetham et al., 2022; McGinty et al., 2017).

Another critical policy shift that is needed to reduce SUD stigma, especially among health-care workers, pertains to laws regulating MOUDs (Cheetham et al., 2022). Methadone is administered daily under the supervision of a pharmacist or clinician on site at a clinic. Takeaway doses are typically not permitted or, in some countries, allowed only after a significant period of treatment stability. Methadone treatment has been labeled "liquid handcuffs" because of its impact on patients' daily lives (e.g., constraints on employment, travel) and is associated with high levels of stigma (Smith, 2011). The strict regulations associated with such programs frame patients with SUD as inherently untrustworthy, untreatable, and likely to engage in criminal diversion (Anstice et al., 2009; Fraser & Valentine, 2008; J. Harris & McElrath, 2012). Moreover, segregating SUD treatment in special clinics outside the normal treatment system may lead to patients' being identified by community members (e.g., in clinic parking lots or in line for MOUD). Instead, providing treatment in primary care and other general health-care settings is preferred because it reduces the stigmatizing belief that SUD is a moral failing and fundamentally distinct from other chronic health conditions (Adams & Volkow, 2020).

In sum, policy approaches are especially promising because they have the potential to prevent stigma among future generations. That is, attitudes, values, beliefs, and behaviors are to a great extent shaped by macro-level social structures that send implicit messages about which groups do and do not have social worth. These strategies are also powerful because they target policy implementation that theoretically affects millions of people simultaneously, including those with SUD (i.e., self-stigma) and without (i.e., public stigma). In contrast, other approaches described above require intervention with individuals and are thus costly and difficult to scale up for widespread social change. Future research should more rigorously empirically examine (e.g., using causal modeling) the impact of state and local policy change on self- and public stigma to identify which kinds of policies have the greatest impact and through which mechanisms.

Despite the promise of policy changes around SUD and mental illness, however, a major challenge is that the will and ability to make such changes is influenced by public opinion. Research consistently finds that individuals with higher levels of public stigma have lower support for enacting and implementing a wide variety of laws and programs that benefit people with mental

illness and SUD, including parity in insurance coverage, harm-reduction programs, MOUD expansion, and government spending on health and social services for these populations (Barry et al., 2014; Cheetham et al., 2022; McGinty et al., 2018; McGinty & White, 2022; Sumnall et al., 2023). Stigma also strongly shapes support for punitive criminal-justice-focused approaches to the problem of SUD over public health strategies to address addiction (Kennedy-Hendricks et al., 2017). Hence, policy change strategies present an uphill battle in which advocacy groups, lawmakers, and other public officials at the national, state, and local levels will need to push for new approaches without widespread public support, at least initially.

Future directions

In this section, we reviewed the main types of interventions that have been implemented in efforts to reduce SUD and mental illness stigma. We have also briefly considered potential mechanisms by which these interventions might be effective (e.g., shifting social norms), as well as additional strategies that may be beneficial in reducing SUD stigma (e.g., emphasizing recovery).

Given these findings, focusing solely on psychoeducation or intergroup contact to reduce SUD stigma may be ineffective. Campaigns or narratives that emphasize recovery and/or leverage social connections to change behavior or perceptions may be best suited to reducing SUD stigma (e.g., Walsh et al., 2023). One potential tool could be public service announcements, which, on their own, have been the focus of much debate in the mental health and SUD stigma literature (P. Corrigan & Gelb, 2006; P. W. Corrigan, 2012; Iles et al., 2017; McGinty et al., 2018). Public messaging around SUD and mental illness is critical for both reducing stigma and promoting treatment seeking, but the framing of the messaging is critical (McGinty & Barry, 2020; McGinty et al., 2018). For example, messages that emphasize recovery could reduce self-stigma (by improving individuals' self-efficacy) but exacerbate public and structural stigma (by exacerbating controllability beliefs). If so, messaging should be directed to individuals with SUD and not incorporated in broad national campaigns. Future work should identify the costs and benefits of messaging that emphasizes recovery from SUD. An additional consideration in this work should be whether messaging ought to vary across SUD types.

SUD public stigma may need to be addressed through a multipronged approach that simultaneously focuses on beliefs about its controllability, changeability, treatability, and dangerousness. For example, introducing contact through social networks (e.g., by targeting change agents or microinfluencers in smaller communities) may have the combined benefit of shifting social

norms and reducing perceptions of dangerousness about an individual with SUD. Cultivating communities of support for stigma reduction across multiple contexts will require a coordinated combination of workplace and school-based programs (e.g., U Bring Change to Mind), social-contact-based individual and network interventions deployed by advocacy groups or treatment programs, and public information dissemination. No one approach is likely to be effective given the complex and multifactorial cognitive and affective underpinnings of stigma. Future work should also consider the desired target audience for stigma-reduction efforts given that interventions may vary in effectiveness for different populations, including health-care professionals, friends and family members of people with SUD, adolescents, and adults.

Although not widely explored in the SUD stigma literature, using person-first language may be another way to reduce stigma (McGinty & Barry, 2020). Person-first language, which places the individual before their condition, has been widely adopted by journals focusing on SUD (Broyles et al., 2014). However, some scholars have argued that person-first language may inadvertently accentuate stigma because it is used only for individuals with stigmatized conditions (Gernsbacher, 2017). Nonetheless, the limited empirical work on this topic is promising. Specifically, describing someone as "having a substance use disorder" or "a person with addiction" rather than a "substance abuser" or an "addict," respectively, has been shown to reduce stigma (Baker et al., 2022; Kelly & Westerhoff, 2010). It remains to be seen whether person-first language in policies or laws could shift support for SUD, but this is an important area for future work.

Throughout this review, we have treated SUD and mental illness stigma as discrete conditions, but SUD and mental illness often co-occur (Parker et al., 2021). For example, a national survey from 2021 found that 13.5% of young adults between the ages of 18 and 25 had both a mental illness and SUD in the year prior to the survey (SAMHSA, 2023), and 7.6% of adults (19.4 million people) experienced co-occurring mental illness and SUD in 2021 (National Alliance on Mental Illness, 2021). These dual stigmatized identities introduce complexity for interventions that must reconcile whether to address a single identity or the intersecting identities. Intersectionality (Cole, 2009; Crenshaw, 2017) has not been widely explored in the context of mental illness and SUD (but see Jackson-Best & Edwards, 2018; Newman & Crowell, 2023). However, some research suggests that having multiple concealable stigmatized identities is associated with worse quality of life and health outcomes (Reinka et al., 2020). In general, the nature and magnitude of stigma toward individuals with

multiple stigmatized identities has been difficult to characterize (Kang & Bodenhausen, 2015) and will be an important area of future work for both mental illness and SUD (Oexle & Corrigan, 2018).

Successfully reducing SUD stigma probably requires interventions at the micro (individual) and macro (policy) levels. In addition to shifting individual attitudes, it is essential that structural shifts also occur to promote opportunities for treatment and recovery for individuals with SUD. Creating policies that normalize SUD treatment and removing policies that create barriers and punishment for SUD are critical for shifting social norms about SUD. Ultimately, such top-down initiatives are essential for creating a culture of change.

Conclusions and Future Directions

Our goal in this review was to provide an overview of the current state of SUD stigma research. To do this, we leveraged existing work on SUD stigma and the large body of work on non-SUD mental illness stigma to highlight places of convergence and divergence between the two. Our hope is that this approach would elucidate the potential mechanisms underlying mental illness and SUD stigma.

Several key points emerged from this review. In the first section, we identified several core stigma-related beliefs that are drivers of stigma, including perceptions of dangerousness, controllability, changeability, and disruptiveness. Two important findings emerged. First, although there is overlap in these beliefs toward individuals with mental illness and SUD, individuals with SUD are generally viewed as more dangerous than individuals with mental illness, and their condition is also perceived to be more controllable and changeable. Second, different mental illness and SUD conditions elicit distinct stigma-related beliefs. Although some initial patterns have emerged (e.g., illicit substance use activates more negative beliefs than legal substance use), future work should explore SUD stigma by condition to characterize the unique underlying drivers of stigma.

In the second section, we identified some of the affective responses elicited by SUD and mental illness. Key limitations in this work include the fact that perceivers' emotional responses to mental illness and SUD have been relatively underexplored and that the types of emotional responses studied had been primarily limited to fear and anger. However, emerging work leveraging other frameworks has also identified the potential roles of disgust, pity, and contempt in mental illness and SUD stigma. Given the inherent challenges of measuring perceivers' affective responses (e.g., they may be unable or unwilling to report their emotional reactions), neuroimaging has presented a promising avenue for better characterizing them. However, as in

behavioral work, the neuroimaging literature has not sufficiently dissociated between distinct mental illness and SUD types, raising questions about the generalizability of these results.

The third section of this review explored stigma's negative impact in several key domains, including self-perception, interpersonal relationships, employment and housing, health and health care, and help-seeking. This section identified numerous downstream consequences of stigma for social stratification, well-being, and help-seeking and recovery. Addressing each of these implications is essential for developing policies and programs targeted at alleviating institutional discrimination.

The final section of our review explored potential intervention targets for future work by providing a road map for future research and translational activities. Although we considered existing interventions (e.g., psychoeducation, contact), we suggest that interventions that address SUD stigma should take a multi-pronged approach that includes shifting existing social norms, including through social network interventions, and promoting a focus on recovery. These interventions should be specific to the SUD type and should consider the sociodemographic factors of their targets.

Our focus on public and self-stigma in this review allowed us to synthesize a large and complex literature. However, this focus was not intended to diminish the importance of structural stigma. Indeed, examining the extent to which existing laws and policies promote structural stigma toward SUD may be a particularly important direction for future work. Recent preliminary work has already identified prominent forms of SUD stigma in existing laws, particularly with respect to housing and treatment (Hemeida & Goldberg, 2022). Future work should more clearly characterize the nature and magnitude of SUD stigma in legal domains and determine how, if at all, it differs from mental illness stigma in the same domains. This work should consider the effects of SUD-related structural stigma on public stigma, beliefs about SUD, affective responses to SUD, and consequences for people coping with SUD.

Given the increasing prevalence of SUD in the United States, particularly following the COVID-19 pandemic, reducing barriers to treatment and improving outcomes for individuals suffering from SUD is an urgent health and ethical problem. Given the prominent role of stigma in creating barriers for treatment and recovery, reducing it should be a key priority in these efforts.

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