Stigmatization of people with alcohol use disorders: An updated systematic review of population studies

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Abstract

Background: We summarize research on the public stigmatization of persons with alcohol use disorder (AUD) in comparison with other mental health conditions and embed the results into a conceptual framework of the stigma process.

Methods: We conducted a systematic search using Embase, MEDLINE, PubMed and PsycINFO (via Ovid), and Web of Science for population-based studies on the public stigma in AUD and at least 1 other mental health condition, published between October 1, 2010 and December 20, 2020, thus including all studies published since the last systematic review on this topic. The study is registered with PROSPERO (registration number: CRD42020173054).

Results: We identified 20,561 records, of which 24 met the inclusion criteria, reporting results from 16 unique studies conducted in 9 different countries. Compared to substance-unrelated mental disorders, persons with AUD were generally less likely to be considered mentally ill, while they were perceived as being more dangerous and responsible for their condition. Further, the public desire for social distance was consistently higher for people with AUD. We found no consistent differences in the public stigma toward persons with AUD in comparison with other substance use disorders.

Conclusion: The stigmatization of persons with AUD remains comparatively high and is distinct from that of other substance-unrelated disorders.

KEYWORDS
alcohol use disorder, discrimination, mental health, stereotypes, stigma
INTRODUCTION

Stigmatization of people with mental disorders is a key contributor to healthcare inequality, as highlighted in the report of the World Health Organization’s Special Initiative for Mental Health (2019–2023; World Health Organization, 2019a). Consequently, understanding the public stigmatization of people with mental disorders or substance use disorder (SUD) is essential to reduce or eliminate negative consequences for those affected and warrants particular attention in research. Yet, most research on the public’s mental health stigma has employed descriptive rather than systematic approaches or conceptual models which are needed for an in-depth understanding (Corrigan et al., 2017). In this systematic review, we summarize population-based research on the public stigmatization of people with AUD compared to the stigma of other conditions (i.e., mental disorders and other SUD).

Several established models of stigma exist (Corrigan et al., 2017; Link & Phelan, 2013; Stangl et al., 2019). Based on this work, we define stigma for the purpose of this review as a process in which people are firstly labeled and thereby assigned to an out-group, secondly subjected to stereotypes and prejudices, and thirdly exposed to discrimination and social distance. This dynamic process implies a nonlinear and interactive stigma process, in which each component can mutually reinforce the others. It is noteworthy that although the stigma process commences with labeling and stereotyping, this may not necessarily be perceptible to the stigmatized person. Latter components such as discrimination, however, are usually tangible for those affected and are more likely to be perceived as harmful.

The components labeling, stereotyping and prejudice, and discrimination will constitute the analytical framework of the current review (see Figure 1) and are outlined in more detail hereafter. Labeling is the categorization of a person using a label such as a diagnosis, which on the one hand is mandatory to provide treatment, but on the other hand assigns the person to a group, which in turn facilitates stereotyping (Link & Phelan, 2013). This transition is fostered when a label already implies a negative connotation, such as “alcoholic,” which in turn is highly culturally shaped. The second component includes stereotypes and prejudices, closely related concepts that are largely linked to negative, harmful, and disrespectful beliefs about a person or group (Corrigan et al., 2017; Link & Phelan, 2013; Stangl et al., 2019). While stereotypes are imminent and culturally conditioned thoughts, such as believing someone to be unpredictable or dangerous, prejudices are the approval of stereotypes, which may lead to negative emotions and evaluations such as fear or anger and finally to discrimination (Corrigan et al., 2017). Blame also belongs to this component and is covered in this review by its 2 facets: onset (e.g., someone is perceived to be responsible for developing an alcohol use problem) and offset responsibility (e.g., someone is perceived to be responsible for not recovering). The final component discrimination can manifest in the desire for social distance and structural discrimination through, for example, social exclusion and loss of status through workplace discrimination or unemployment (Corrigan et al., 2017; Link & Phelan, 2013; Stangl et al., 2019).

This work is an update of a previous systematic review (Schomerus et al., 2011), in which attitudes toward people with...
AUD were compared to attitudes toward people with other mental disorders or other SUD in 17 different studies. The authors of this review concluded that “people suffering from alcohol dependence (and from other addictions) are particularly severely stigmatized” (p. 109). High levels of blame projected onto people with AUD may further reflect a specific moral component of addiction stigma. They argued that the stigma of SUD can be understood as a reaction to unacceptable behavior—that is, as a function of norm enforcement—to “keep people in” (Phelan et al. 2008). In this updated systematic review, we summarize studies published since October 2010 investigating the stigma of AUD in comparison with the stigma of other mental disorders. We present and discuss our findings in the context of the stigma process and highlight research studies that have investigated: (i) changes in the stigma process since 1990 or (ii) the interrelation of the different aspects of the stigma process in AUD.

2 | METHODS

In order to provide an update of the 2011 systematic review by Schomerus and colleagues, we conducted a literature search of all representative population-based studies on public attitudes toward persons with AUD and toward persons with any other mental health condition, published between October 1, 2010, and December 20, 2020. The protocol of this systematic review was published on PROSPERO (registration number: CRD42020173054) based on the PRISMA guidelines (Appendix S1).

The literature search was performed using Embase, MEDLINE, PubMed and PsycINFO (via Ovid), and Web of Science. Search terms included, among others, AUD, mental disorder, attitudes, and population-based study (for details, see Appendix S2). The search was conducted using English search terms, with no geographical restrictions being applied. Additional potential articles

![PRISMA flowchart of study selection](Figure 2)
were identified through expert consultation and by reviewing reference lists of identified studies and published reviews related to this topic. In a stepwise approach, titles and abstracts were screened first, followed by a full-text screening of suitable articles. Research articles were included if they met all of the following criteria: (1) population-based study, (2) examination of attitudes toward persons with AUD and toward persons with at least 1 other mental health condition according to the International TABLE 1
Study characteristics of all studies included in the review

| # | Country          | Year | n     | RR   | Stimulus   | Comparison with                                      |
|---|------------------|------|-------|------|------------|------------------------------------------------------|
| 1 | West Germany     | 1990 | 3067  | 70.0 | Vignette   | Depression, schizophrenia                            |
| 2 | Germany          | 2001 | 5025  | 65.1 | Label      | Depression, schizophrenia, Alzheimer's disease      |
| 3 | Germany          | 2011 | 2951  | 64.0 | Vignette   | Depression, schizophrenia (Alzheimer's disease)      |
| 4 | Sweden           | 2005 | 1098  | 54.6 | Label      | Drug addiction, tobacco addiction                    |
| 5 | Finland          | 2007 | 740   | 37.0 | Label      | Tobacco addiction, drug addiction, problem gambling, Internet addiction |
| 6 | Finland          | 2010 | 1501  | 50.5 | Label      | Insomnia, drug addiction, problem gambling, personality disorder, ADHD, SAD, anorexia, bulimia, GAD, autism, panic disorder, depression, schizophrenia |
| 7 | Basel, Switzerland | 2013-2014 | 2207 | 22.1 | Vignette   | Acute psychotic disorder, borderline personality disorder |

Region of the Americas

| 8 | United States    | 1996 | 1444  | 76.1 | Vignette   | Depression, schizophrenia                            |
| 9 | United States    | 2006 | 973 (1522)a | 25.4 (71.2)a | Vignette   | Depression, schizophrenia                            |
| 10| United States    | 2011 | 570   | 83.9 | Vignette/Label | Tobacco addiction                                    |
| 11| United States    | 2018 | 1173  | 59.5 | Vignette   | Depression, schizophrenia, drug addiction            |
| 12| Brazil           | 2010 | 2001  | .    | Vignette   | Drug addiction, depression, schizophrenia            |

Western Pacific Region

| 13| Victoria, Australia | 2011 | 2000  | .    | Vignette   | Problem gambling, schizophrenia                     |
| 14| Queensland, Australia | 2012 | 1263  | 35.3 | Label      | Drug addiction                                      |
| 15| Singapore         | 2014 | 3006  | 71.0 | Vignette   | Dementia, depression, schizophrenia, OCD             |
| 16| South Korea       | 2015 | 573   | .    | Vignette   | Depression, schizophrenia                           |

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aAngermeyer et al., (2014); bPescosolido et al., (2019); brackets indicate information available in this article only; cStudies investigated associations between different stigma aspects in people with AUD compared to people with other mental disorders; dStudies examined the stigma of AUD over time. [...] no information available.
| Labeling | Unpredictability/ dangerousness | Onset responsibility | Offset responsibility | Negative emotions | Desire for social distance | Approval for structural discrimination | Literature |
|----------|---------------------------------|----------------------|-----------------------|-------------------|--------------------------|----------------------------------------|------------|
|          |                                  |                      |                       |                   |                          | [X]                                    | Angermeyer et al., (2013)** |
|          |                                  | X                    | X                     | X                 | X                        | [X]                                    | Angermeyer et al., (2014)** |
|          |                                  | X                    | X                     |                   | X                        | [X]                                    | Angermeyer et al., (2013)**, (2014); Schomerus et al., (2013)**, (2014a)**; Speerforck et al., (2014)** |
|          |                                  | X                    | [X]                   | [X]               |                          | [X]                                    | Blomqvist (2012) |
|          |                                  | [X]                  | [X]                   | [X]               |                          | [X]                                    | Koski-Jännnes et al., (2012) |
|          |                                  | X                    | X                     |                   |                          | [X]                                    | Tikkinen et al., (2012, 2019) |
|          |                                  | X                    | X                     |                   |                          | X                                      | Sowislo et al., (2017a, 2017b) |
|          |                                  | [X]                  | X                     |                   | X                        | [X]                                    | Pescosolido et al., (2019)** |
|          |                                  | X                    | X                     |                   | X                        | X                                      | Andersson and Harkness (2018); Pescosolido et al., (2019)** |
|          |                                  | X                    | X                     | X                 | X                        | X                                      | DePierre et al. (2014) |
|          |                                  | [X]                  | X                     |                   | [X]                      | X                                      | Hengartner et al., (2013) |
|          |                                  | X                    | X                     | [X]               |                          | [X]                                    | Hing et al., (2016) |
|          |                                  | X                    | X                     |                   | X                        | [X]                                    | Meurk et al., (2014a, 2014b) |
|          |                                  | X                    | X                     | X                 | X                        | X                                      | Chong et al., (2016); Pang et al., (2018); Subramaniam et al., (2017) |
|          |                                  | X                    | X                     |                   |                          | X                                      | Lee and Seo (2018) |

Classification of Diseases 10th Revision (ICD-10, World Health Organization, 2019b) and the Diagnostic and Statistical Manual of Mental Disorders 4th or 5th edition (DSM-IV, DSM-5, American Psychiatric Association, 1994, 2013), and (3) using a standardized assessment and identical instruments for evaluating attitudes across mental health conditions (for a full list of inclusion and exclusion criteria, see Appendix S3). The systematic review was conducted by 3 reviewers (CK, SC, and FF), with each article
being independently screened by 2 reviewers. To increase interrater reliability (Cohen’s Kappa = 0.46; McHugh, 2012), ambiguous decisions were solved by the project leads JM and CK (title and abstract screening: 74; full-text screening: 10). The systematic literature search was employed using the systematic review software Covidence (Veritas Health Innovation, 2020).

Potential risk of bias was determined based on an adapted version of the ROBINS-I tool (Sterne et al., 2016). The tool was adapted to evaluate the bias of cross-sectional observational studies, rather than randomized controlled trials (available upon request).

3 | RESULTS

A total of 20,570 records were identified of which 24 research articles reporting data collected in 16 unique studies have been included in the final review (see Figure 2 and Table 1). Seven studies originated in Europe, 4 in the United States, 2 in Australia, and 1 each in Brazil, Singapore, and South Korea. The majority of studies compared the stigma in AUD with the stigma in depression and schizophrenia, or with other drug or behavioral addictions, with only 3 studies looking at other mental health conditions, such as dementia, eating disorders, or personality disorders. We retrieved additional, unpublished findings relevant to our research question from 3 surveys: For the US General Social Survey waves 2006 (study #9) and 2018 (study #11), microdata were publicly available, and for a German survey conducted in 2011 (study #3), results were provided upon request by the authors. These additional findings provide insights on the extent of public stigma toward persons with AUD and other mental health conditions, which were not published elsewhere but are included in this review.

In the following, key findings relevant to this systematic review are descriptively summarized (for details on the study’s methodology, see Appendix S5). Unless otherwise stated, comparisons of stigma aspects between mental health conditions were usually not subject to inferential statistical analyses in the original studies.

3.1 | Labeling

Six studies investigated whether AUD was considered a disease or a mental illness, with only 5 studies presenting their findings (no information was available for study #12). In the Finnish study by Tikkinen et al., (2012, 2019), more than 1500 adults were asked whether they considered a wide range of mental disorders or other conditions to be a disease (label stimulus “alcoholism”). While more than three-quarters indicated that schizophrenia and autism were a disease and more than half of the respondents considered depression, eating disorders, panic disorder, and attention deficit hyperactivity disorder (ADHD) to be diseases, the results were less clear for AUD, drug addiction, social anxiety disorder, generalized anxiety disorder, and insomnia. Almost 50% agreed, at least to some extent, that "alcoholism" was a disease, while about one-third disagreed and one-fifth neither agreed nor disagreed. Similarly, in studies based on unlabeled vignettes in Germany (study #3) and the United States (study #9), about half of the samples considered a person with AUD as having a mental illness, compared to 65% to 73% for depression, and more than 80% for schizophrenia (see Appendices S6, S7; Georg Schomerus et al 2013). In contrast, in vignette studies by DePierre et al., (2014, United States, study #10), Chong et al., (2016, Singapore, study #15), and Perry et al., (2020, United States, study #11), a higher proportion of respondents considered AUD to be a disease. In the first study (study #10), almost three-quarters agreed that AUD was a disease rather than a habit, while in the second and third study, about 60% identified AUD as a mental illness. In the 2018 US General Social Survey, there was no considerable difference in the proportion of people identifying AUD (66.0%) and depression (75.4%) as a mental illness, while the proportion of such recognition was substantially higher for schizophrenia (94.5%) and substantially lower for other SUDs (39.0%; Perry et al., 2020). In the Singaporean sample, a lower proportion of respondents had such an illness-related recognition of schizophrenia (11.5%, SE = 1.8) and obsessive-compulsive disorder (OCD; 28.7%, SE = 2.5), while a higher proportion considered depression (55.2%, SE = 2.8), dementia (66.3%, SE = 2.6), and alcohol abuse (57.1%, SE = 2.7) as a disease. Compared to AUD and most other mental disorders, tobacco addiction was perceived more as a habit than a disease (agreement: 59.8%; DePierre et al., 2014), or rather not a disease at all (agreement: >80%; Tikkinen et al., 2012).

3.2 | Stereotypes and prejudice

Nine studies examined stereotypes concerning dangerousness or unpredictability of AUD and other mental health conditions. Among vignette studies examining perceived dangerousness (7 studies), persons with AUD were consistently considered to be more dangerous toward others, as compared to people meeting criteria of either depression (see also Appendix S6; Lee & Seo, 2018; Perry et al. 2020; Pescosolido et al 2019; Subramaniam et al 2017), borderline personality disorder (p <0.05; Sowislo et al., 2017a), dementia or OCD (Subramaniam et al., 2017), problem gambling (p <0.05; Hing et al., 2016), and drug problems (Perry et al., 2020). Comparing vignettes of persons with AUD and schizophrenia, the former were found to be perceived to be more dangerous in 2 studies (Lee & Seo, 2018; Subramaniam et al., 2017) and equally dangerous in 4 studies (see Appendix S6; Hing et al 2016; Perry et al 2020; Pescosolido et al 2019; Sowislo, Gonet-Wirz, et al 2017). Two studies additionally evaluated stereotypes about unpredictability. Results of the Singaporean study by Subramaniam et al., (2017, Singapore, study #15) indicated that people with alcohol abuse were considered to be unpredictable by 65.0%, with proportions being higher for schizophrenia (77.0%) and dementia (70.3%), and lower for depression (60.6%) and OCD (40.5%). In contrast, in Germany (study #3, see Appendix S6), persons with AUD (46.2%) were considered to be
similarly unpredictable as persons with schizophrenia (48.6%), while those with depression (21.5%) were considered less unpredictable in this country. Meurk et al., (2014a, Queensland, Australia, study #14) asked their respondents whether someone who was addicted to alcohol or to heroin would be of higher risk of getting into trouble with the law compared to other people, and more than 90% claimed this to be the case for the former and almost 99% for the latter. In the study carried out by Hengartner et al., (2013, Brazil, study #12), a combined measure capturing negative stereotypes was used, covering attributions such as being unpredictable, dangerous, stupid, or abnormal. Negative stereotypes toward persons with AUD (M = 2.1, 95% CI: 2.0–2.1) and cocaine dependence (M = 2.1, 95% CI: 2.1–2.2) were the highest, followed by schizophrenia (M = 2.0, 95% CI: 2.0–2.0) and depression (M = 1.9, 95% CI: 1.9–2.0).

We identified 8 studies asking for the onset responsibility on a disease. Compared to both depression (9.6%) and schizophrenia (9.0%), almost two-fifths of those surveyed in Germany (study #3, see Appendix S6) found persons with AUD responsible for their condition. Koski-Jännes et al., 2012a, 2012b, Finland, study #5) asked their respondents whether they believed that circumstances beyond the person's control (“1” mainly the circumstances) or the individual (“4” mainly the individual) were responsible for their dependence on various substances and behaviors. For all types of dependence studied, including AUD, respondents rated the individual to be more responsible than the circumstances (AUD: M = 3.0, SD = 0.8; mean over all substances: M = 3.2, SD = 0.6). We also considered causal beliefs as 1 aspect of onset responsibility when “bad character” was included as 1 option to explain the origin for a disease (compared to options like “chemistry in the brain” or “stress” or “genetic”), which was the case in 6 studies (see Appendices S6, S7; Andersson & Harkness, 2018; Meurk, Partridge, et al 2014; Hing et al 2016; Meurk, Carter, et al 2014). Compared to vignettes describing persons with depression or schizophrenia, descriptions of persons with AUD tended to be more likely to be associated with a bad character (see Appendices S6, S7; Andersson & Harkness, 2018; Hing et al 2016; Perry et al 2020). Compared to persons with AUD, people with other SUDs or with problem gambling behavior were not considerably different with regard to the public attribution of a “bad character” (Hing et al., 2016; Meurk et al., 2014a, 2014b) or moral weakness (DePierre et al., 2014), with the exception of 2018 US study (AUD: 70.3%, SUD: 52.0%; Perry et al., 2020). Pang et al., (2018, Singapore, study #15) conducted a factor analysis with different causal beliefs and identified a “personality” factor determined by high factor loads on the items “weak character” and “being a nervous person.” More than 80% of respondents endorsed causal attribution to this “personality” factor in alcohol abuse.

Four studies examined aspects related to the offset responsibility of various mental health conditions. With regard to the individuals’ likelihood to “get better if they wanted to” (Subramaniam et al., 2017, Singapore, study #15), the highest approval was observed in vignettes describing a person with alcohol abuse (94.5%), followed by depression (92.1%), OCD (90.4%), schizophrenia (88.0%), and dementia (81.3%). Similarly, offset responsibility was rated higher for persons with AUD (35.3%) than for those with depression (24.8%) or schizophrenia (20.7%) in a German sample (see Appendix S7, study #3). In the 2 other studies, both using disease labels, the responsibility to recover in people with AUD compared to other addictions was compared. In the first case (Blomqvist, 2012, Sweden, study #4), respondents were asked about the person’s likelihood of self-change with and without treatment. On average, respondents indicated a similar probability for alcohol misusers to recover without treatment compared to those with cannabis addiction and a lower probability compared to tobacco addiction. The likelihood that people with a dependence on hard drugs would recover was considered to be the lowest. Finally, the individual responsibility to recover was investigated in a Finnish study (Koski-Jännes et al., 2012, study #5). Scoring the individual responsibility for recovery on a scale ranging from “1” (the society is totally responsible) to “4” (the individual is totally responsible), persons with AUD were in the middle range (M = 3.0, SD = 0.8), while slightly higher scores were given to people addicted to smoking (M = 3.2, SD = 0.9), gambling (M = 3.5, SD = 0.7), and Internet (M = 3.5, SD = 0.7), and similar scores were given to people addicted to medical drugs (M = 3.1, SD = 0.8), marijuana (M = 2.98, SD = 0.99), and “hard” drugs (M = 2.94, SD = 1.0).

We found only 2 studies examining negative emotions toward persons with AUD and other mental health conditions that were published since the 2011 review. The first study included feelings of fear (e.g., “the person makes me feel insecure” or “the person scares me”) and anger (e.g., “I feel annoyed by the person” or “I am amused by something like that”) toward people with AUD, schizophrenia, and depression (Angermeyer et al., 2013, Germany, study #3). More than two-fifths of the respondents agreed that they felt uncomfortable around persons with AUD, while 25% stated that they felt insecure and 26% felt scared. Feelings of fear were directed toward persons with schizophrenia to a similar degree (uncomfortable: 49%, insecurity: 30%, being scared: 37%) but less so toward those meeting the criteria for depression (uncomfortable: 30%, insecurity: 21%, being scared: 20%). Feelings of anger were about 10 percentage points higher toward those with AUD (feeling annoyed: 22%, react angrily: 24%) compared to schizophrenia (feeling annoyed: 13%, react angrily: 9%) or depression (feeling annoyed: 9%, react angrily: 9%). However, less than 5% of the respondents agreed to the item “I am amused about something like that” for all mental health conditions which the authors also considered to reflect feelings of anger. In the second study (DePierre et al., 2014, United States, study #10), feelings of anger and disgust were found to be of similar frequency for both persons with AUD and tobacco addiction.

### 3.3 Discrimination

Twelve studies included questions on the desire for social distance themselves from persons with AUD and other mental health conditions, with 10 studies reporting findings relevant to the research question of this systematic review (no information was available for study #2 and study #13). Among studies comparing the desire for
social distance from people with AUD to schizophrenia and depression (6 studies), results indicated a greater desire for social distance in the case of AUD compared to depression (significant in study #12; see Appendix S7; Andersson & Harkness, 2018; Angermeyer et al 2013; Hengartner et al 2013; Lee & Seo, 2018; Perry et al 2020; Subramaniam et al 2017). With regard to schizophrenia, however, results were less clear, with 2 studies finding a significantly lower desire for social distance in schizophrenia compared to AUD and 5 studies that identified no marked difference (see Appendix S7; Andersson & Harkness, 2018; Angermeyer et al 2013; Lee & Seo, 2018; Perry et al 2020; Subramaniam et al 2017). In the study by Subramaniam et al., (2017, Singapore, study #15), rejection of persons with AUD was highest for the items “marry into your family” (83%), “working closely with you on a job” (51.9%), and “move next door” (51.2%). In the German study by Angermeyer et al., (2013, study #3), rejection rates were generally lower in the same items (respectively: 68%, 34%, and 31%), while 4 in 5 respondents stated that a person with AUD should not take care of children. A lower desire for social distance was observed toward people with dementia and OCD (Subramaniam et al., 2017), as well as borderline personality disorder (p < 0.05; Sowislo et al., 2017). Five studies considered other drug addictions, of which 2 identified no considerable difference between AUD and other SUDs (Hengartner et al., 2013; Perry et al., 2020). In contrast, Blomqvist (2012, Sweden, study #4) identified a higher desire for social distance to drug misusers (M = 3.8, SD = 1.0) compared to alcohol misusers (M = 2.8, SD = 0.9), which was likewise reported by Meurk et al., (2014a, Queensland, Australia, study #14). In contrast, more people reported to have a higher desire for social distance toward persons with AUD compared to tobacco addiction in the United States (p < 0.05; DePierre et al., 2014).

We obtained 6 studies accounting for structural discrimination (Angermeyer et al., 2014; Hengartner et al., 2013; Meurk et al., 2014a; Perry et al., 2020; Pescosolido et al., 2019), of which 2 each were conducted in Germany (Angermeyer et al., 2014, study #2, #3) and the United States (Perry et al., 2020; Pescosolido et al., 2019; study #9, #11). In the former, respondents were asked for their preferences for the allocation of financial resources for patient care for a number of medical conditions and mental disorders. While there was no difference in the preference for resource allocation for AUD (2001: 4%, 2011: 8%) and schizophrenia (2001: 8%, 2011: 9%), the willingness to spend more financial resources on patient care was markedly higher for depression in 2011 (2001: 6%, 2011: 21%) and for Alzheimer’s disease in both years (2001: 25%, 2011: 28%) compared to AUD. In the US studies, respondents were asked whether somebody with a mental health condition should be forced into treatment by law, with endorsement being the highest for people with schizophrenia (68.9%), followed by people with other SUD (64.3%) and AUD (50.4%) and people with depression (30.9%; Perry et al., 2020; Pescosolido et al., 2019). Similar results for treatment coercion in AUD and other SUDs were observed in Queensland, Australia (AUD: 41%, heroin addiction: 71%; Meurk et al., 2014a, study #14). In the study by Hengartner et al., (2013, Brazil, study #12), respondents rated their support for general social restrictions and misgivings on a scale ranging from “1” (certainly yes) to “3” (definitely not), with results indicating such discriminatory measures were more acceptable for people with AUD (M = 2.3, 95% CI: 2.2–2.3), cocaine dependence (M = 2.3, 95% CI: 2.2–2.3), and schizophrenia (M = 2.2, 95% CI: 2.2–2.3) rather than for people with depression (M = 2.1, 95% CI: 2.0–2.1).

An overview of key findings presented above with regard to AUD, depression, schizophrenia, drug, and tobacco addiction is provided in Table 2.

### 3.4 Changes in the stigma in AUD since 1990

Three articles of those identified additionally assessed changes in various aspects of the stigma process over time. Pescosolido et al., (2019) analyzed and compared data from 3 waves of the General Social Survey covering a time period over more than twenty years (1996: study #8, 2006: study #9, 2018: study #11), while Angermeyer et al., (2013, 2014) compared data from overlapping general population sample representative of the West German population covering a similar time range (1990: study #1, 2001: study #2, 2011: study #3) in 2 separate papers.

In the US studies, perceived dangerousness and support for coerced treatment for people with AUD, schizophrenia, and depression were investigated. Among the 3 points in time, only few changes in the public perception of AUD were observed: The perceived likelihood for people with AUD to do something violent to themselves was considered to be lower in 2018 compared to 2006 (p < 0.05), yet the perceived violence toward others remained unchanged. With regard to the German studies, emotional reactions and the desire for social distance toward persons with AUD, schizophrenia, and depression were investigated in a first publication comparing the 1990 and 2011 studies only (Angermeyer et al., 2013). Over this period, there was no change in feelings of fear toward persons with AUD, while the proportion of persons who agreed that they felt annoyed or reacted angrily to a person with AUD was higher by almost 10 percentage points in 2011 (feel annoyed: 22%, react angrily: 24%) as compared to 1990 (feel annoyed: 15%, react angrily: 15%, both p < 0.05). Similarly, more respondents in 2011 than in 1990 indicated that they would avoid introducing someone with AUD to a friend (1990: study #1, 2001: study #2, 2011: study #3) in 2 separate papers.

Changes in the stigma in AUD since 1990

We obtained 6 studies accounting for structural discrimination (Angermeyer et al., 2014; Hengartner et al., 2013; Meurk et al., 2014a; Perry et al., 2020; Pescosolido et al., 2019), of which 2 each were conducted in Germany (Angermeyer et al., 2014, study #2, #3) and the United States (Perry et al., 2020; Pescosolido et al., 2019; study #9, #11). In the former, respondents were asked for their preferences for the allocation of financial resources for patient care for a number of medical conditions and mental disorders. While there was no difference in the preference for resource allocation for AUD (2001: 4%, 2011: 8%) and schizophrenia (2001: 8%, 2011: 9%), the willingness to spend more financial resources on patient care was markedly higher for depression in 2011 (2001: 6%, 2011: 21%) and for Alzheimer’s disease in both years (2001: 25%, 2011: 28%) compared to AUD. In the US studies, respondents were asked whether somebody with a mental health condition should be forced into treatment by law, with endorsement being the highest for people with schizophrenia (68.9%), followed by people with other SUD (64.3%) and AUD (50.4%) and people with depression (30.9%; Perry et al., 2020; Pescosolido et al., 2019). Similar results for treatment coercion in AUD and other SUDs were observed in Queensland, Australia (AUD: 41%, heroin addiction: 71%; Meurk et al., 2014a, study #14). In the study by Hengartner et al., (2013, Brazil, study #12), respondents rated their support for general social restrictions and misgivings on a scale ranging from “1” (certainly yes) to “3” (definitely not), with results indicating such discriminatory measures were more acceptable for people with AUD (M = 2.3, 95% CI: 2.2–2.3), cocaine dependence (M = 2.3, 95% CI: 2.2–2.3), and schizophrenia (M = 2.2, 95% CI: 2.2–2.3) rather than for people with depression (M = 2.1, 95% CI: 2.0–2.1).

An overview of key findings presented above with regard to AUD, depression, schizophrenia, drug, and tobacco addiction is provided in Table 2.
3.5 Cross-sectional testing of stigma framework assumptions

In addition to stigmatizing attitudes toward people with AUD and other mental disorders, we were also interested in reviewing evidence concerning the relationship between the different components of the stigma process (Figure 1). We report findings of analyses that are grounded on the assumption that certain lower-level components, such as labeling or stereotypes, constitute the foundation for developing higher-order stigma components, such as discriminatory attitudes or social distance. We identified 3 articles, based on the same German general population sample (study #3), which examined cross-sectional associations of different stigma components. All analyses used vignettes as stimulus and adjusted for sociodemographics.

In the first 2 studies, the researchers examined whether labeling and stereotypes (i.e., beliefs regarding onset responsibility) predicted discrimination in terms of social distance. They found that respondents who identified AUD as a mental illness (Schomerus et al., 2013) and who attributed AUD onset to chemical imbalances in the brain or to a brain disease (Speerforck et al., 2014) reported a significant lower desire for social distancing. In a third study, Schomerus et al., (2014a) performed path analyses to study how stereotypes and prejudice (including beliefs regarding on- and offset responsibility and perceived dangerousness) relate to the desire for social distance. According to their findings, beliefs in biogenic causes for AUD were directly associated with lower desire for social distance. This relationship was in part mediated by opposing associations with blame and perceived dangerousness: Respondents who endorsed biogenic causal beliefs were less likely to blame people with AUD for their condition, which was related to lower desire for social distance. However, endorsement of biogenic causal beliefs was also associated with increased perceived dangerousness of people with AUD, which in turn was related to higher desire for social distance. Indirect effects of causal beliefs on discrimination were found for the associations between beliefs in childhood adversities or current stress and social distance. Beliefs in childhood adversities as causes for AUD were linked to increased perceptions of dangerousness of people with AUD and, in turn, higher desire for social distance. On the other hand, beliefs in current stress as cause for AUD was associated with less blame and less perceived dangerousness, which was linked to lower desire for social distance.

### TABLE 2 Summary of key findings

| Aspect of the stigma process | Depression | Schizophrenia | Other substance use disorder |
|-----------------------------|------------|---------------|----------------------------|
| Labeling as mental illness  | D > AUD: 3 (#3, #6, #9) | S > AUD: 4 (#3, #6, #9, #11) | SUD = AUD: 1 (#6) |
|                            | D = AUD: 2 (#15, #11) | S < AUD: 1 (#15) | AUD > SUD: 1 (#11) |
|                            |                     | S < AUD: 1 (#15) | T < AUD: 2 (#6, #10) |
| Stereotype and prejudice   | D < AUD: 6 (#3, #9, #11, #12^a, #15, #16) | S < AUD: 2 (#15, #16) | SUD = AUD: 2 (#12^b, #14^c) |
|                            | S > AUD: 1 (#15^a)  | S = AUD: 5 (#3, #7, #9, #11, #12^a, #13) | AUD > SUD: 1 (#11) |
|                            |                     | S > AUD: 1 (#15^b) | T < AUD: 1 (#4) |
| Onset responsibility^d     | D < AUD: 4 (#3, #9, #11, #13) | S < AUD: 1 (#3) | SUD = AUD: 2 (#4, #5) |
|                            | D = AUD: 1 (#15)    | S = AUD: 1 (#15) | T > AUD: 1 (#4) |
|                            |                     |                     | SUD ≈ AUD: 1 (#10) |
| Offset responsibility       | D < AUD: 1 (#3)     | S < AUD: 1 (#3)    | SUD = AUD: 2 (#11, #12) |
|                            | D = AUD: 1 (#15)    | S = AUD: 1 (#15)   | T > AUD: 2 (#4, #14) |
| Negative emotions           | D < AUD: 1 (#3)     | S < AUD: 1 (#3)    | SUD = AUD: 2 (#11, #14) |
|                            | D = AUD: 1 (#15)    | T = AUD: 1 (#10)   | SUD = AUD: 1 (#12) |

**Discrimination**

| Desire for social distance  | D < AUD: 6 (#3, #9, #11, #12, #15, #16) | S < AUD: 2 (#7, #12) | T < AUD: 1 (#10) |
|                            | S = AUD: 5 (#3, #9, #11, #15, #16) | SUD = AUD: 2 (#11, #12) | SUD > AUD: 2 (#4, #14) |
| Approval for structural    | D < AUD: 3 (#3, #11, #12) | S > AUD: 2 (#9, #11) | SUD > AUD: 2 (#11, #14) |
| discrimination             | D = AUD: 2 (#2, #9)    | S = AUD: 3 (#2, #3, #12) | SUD = AUD: 1 (#12) |

**Note:** Greater than and less than signs indicate considerable difference, based on either statistical significance or a descriptive criterion of at least 10 percentage point difference.

**Abbreviations:** AUD, alcohol use disorder; D, depression; S, schizophrenia; SUD, substance use disorder; T, tobacco addiction.

^aNegative stereotypes including unpredictability and dangerousness.; ^bBeing unpredictable.; ^cGetting into trouble with law.; ^dOnly studies that asked for blame or the causes “bad character” or “moral weakness.”

### 4 Discussion

Our systematic literature search identified 24 publications since 2010, analyzing aspects of stigma toward people with AUD and
other mental disorders. The synthesis of findings revealed that stigmatizing beliefs and behaviors toward people with AUD were pervasive in the general population and usually more pronounced than toward persons with depression or schizophrenia. More specifically, people with AUD tend to be perceived as more dangerous and more responsible for their condition, as well as being faced with a greater desire for social distance and a higher degree of acceptance of structural discrimination than people with substance-unrelated disorders. However, we found no clear evidence for substantial differences in these stigma aspects between AUD and other SUD or indications for changes in stigmatizing beliefs or behaviors toward persons with AUD since 1990 in the United States or West Germany. Thus, AUD remains among the most stigmatized mental disorders, corroborating findings of the 2011 review by Schomerus et al., (2011). Further, the sociocognitive processes underpinning the stigmatization of people with AUD appears to follow distinctly different patterns as compared to depression and schizophrenia (Schomerus et al., 2013; Schomerus et al., 2014; Speerforck et al., 2014).

Before we discuss our findings, we would like to outline the limitations of this systematic review. First, the risk of bias assessment identified a serious risk in eleven articles (see Appendix S4), of which the majority did not provide information on missing values, while 3 articles failed to report response rates. Due to these shortcomings, a final evaluation of potential bias due to missing data or nonresponses could not be undertaken for all publications. In the remaining articles, 6 were found to have a low and 6 to have a medium risk of bias. Second, the interrater reliability in abstract and full-text screenings was low, which was counteracted by discussing ambiguous decisions with the team. Additionally, reference lists of other systematic reviews in the field were screened and experts were consulted for relevant additional literature resulting in 9 additional records included (see Figure 2). Third, our search included only English search terms, potentially omitting reports that did not include an English title or abstract. Finally, social desirability, which was not captured in the studies summarized in this review, may have biased the results of the individual studies by leading to underreporting of stigmatizing attitudes, thus representing conservative estimates.

All publications included in this review were based on cross-sectional data and the majority were conducted in either European countries or in the United States. Yet, a comparison of their results with the studies from Singapore and South Korea suggests that there may be substantial cultural differences in the stigmatization of AUD and mental disorders. For example, people with AUD were perceived to be more dangerous than persons with schizophrenia in the 2 Asian studies, as compared to studies conducted in Australia and Switzerland in which dangerousness was evaluated to be similar across these conditions. Cultural differences regarding the stigma toward persons with AUD and other mental disorders are likely due to differences in prevalence and thus likelihood of contact with affected persons, acceptance of, and established knowledge about these conditions in different cultures (Abdullah & Brown, 2011; Ciftci et al., 2013; Koski-Jännès et al., 2012; Lee & Seo, 2018). However, research from Latin America, the South-East Asian, or the entire African Region is scarce with no study identified in these regions. Some of the research found in our literature search for these regions captured mental health literacy rather than aspects of stigma leading to the exclusion for these contributions for the current purpose. For example, while we identified 1 study each from India (Singh et al., 2019) and rural China (Yu et al., 2016), their surveys were designed to measure the public’s knowledge on mental diseases rather than aspects of stigma.

We observed differences in stigma aspects between studies that used labels or vignettes to describe persons with AUD as stimuli. In vignette studies in which a person fulfilling the criteria of a mental disease was described, AUD seemed to be more likely to be considered a mental illness by viewers (60% to 74% in studies #10, #11, #15; Chong et al., 2016; DePierre et al., 2014; Perry et al., 2020), while in the study of Tikkinen, which used the label “alcoholism”, only half of the sample recognized AUD as a disease (Tikkinen et al., 2012, 2019). This underlines the potential impact of applying either a labeling or a vignette-based approach to capture public stigma. While certain labels of AUD could reinforce stigmatizing attitudes, labeling AUD as a disease could have a beneficial impact, potentially reducing blame and increasing prosocial reactions. However, in the German study by Schomerus et al., (2013) and based on the findings of the 2006 US General Social Survey (see Appendix S7), the use of a vignette describing a person with AUD resulted in only half of the respondents recognizing AUD as a medical disease, similar to the findings by Tikkinen and colleagues. Given the heterogeneity of studies, it is not possible to evaluate the effect of labels and vignettes on labeling AUD a mental illness and subsequently on stigmatizing attitudes. Experimental studies investigating the application of labels and vignettes and their effects on various stigma aspects are required.

Among the articles identified in our literature search, we found only 3 publications assessing changes in the stigma of AUD and other conditions over time. These articles were all based on repeated cross-sectional surveys conducted in (West) Germany and the United States. While we found no indication for changes in perceived dangerousness and approval for structural discrimination across the US studies, findings from Germany suggested that public stigma toward persons with AUD has changed somewhat for the worse. We identified 2 other articles using the same data in which the results for AUD were not compared with other mental disorders, so they were not part of this systematic review. As compared to 1990 survey, no sufficient evidence was found pointing to a change in the stigma of AUD since 2011 (Schomerus et al., 2014b; Schomerus et al., 2014). Taken together, the results do not point to substantial changes in the stigma of AUD since 1990. However, limitations such as the cross-sectional nature of the data and the regional restrictions need to be taken into account and demand further studies to detect possible changes over time.

Very few studies reported findings that could be used to (in)validate the proposed analytical framework. We identified 3 studies from the same cross-sectional sample of German respondents reporting associations of stigma components. While findings should
be interpreted cautiously and neither causality nor the direction of a possible causal link of the stigma components is known at this stage, an important observation can be made: The association between stigma components is not as clear and unambiguous as specified in the stigma process framework. The findings suggest that the development of stigma toward people with AUD is complex. For example, labeling AUD as mental illness was associated with a lower likelihood of expressing anger, but with an increased likelihood of expressing fear toward those with an AUD (Schomerus et al., 2013). This could indicate that 2 contrasting conceptualizations shape our responses to AUD: If regarded as a stable and trait-like condition, related to assumptions on “bad character,” blame and feelings of anger might be less pronounced but fear and social exclusion nevertheless high. Conversely, if regarded as a “bad behavior”—that is, a state that needs to be overcome—moral judgments and blame of people with AUD could be harsher, possibly leading to more discrimination and social exclusion. Such seemingly contradictory patterns highlight the particular nature of AUD, being regarded as both a behavior and an illness. So far, both conceptualizations seem to work to the disadvantage of persons with AUD. It is unclear how interventions need to frame AUD in order to minimize discrimination, and this tension between behavior and disease possibly cannot be resolved. However, continuum models of substance use problems might offer a third way to conceptualize AUD in order to make SUDs of differing severity more relatable (Morris et al., 2020).

With respect to clinical interventions, the last systematic review found interventions for self-stigmatization, stigmatization in the general population, and structural stigmatization in health (Livingston et al., 2012). However, effect sizes were small, and overall, the authors indicated that several interventions demonstrated promise for achieving meaningful improvements in stigma related to SUDs. Obviously, for changing the long-lasting stigmatization of people with SUD, this may not be enough.

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**CONFLICT OF INTEREST**

None.

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SUPPORTING INFORMATION
Additional supporting information may be found online in the Supporting Information section.

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