

Public Stigma of Mental Illness in the United States: A Systematic Literature Review

Angela M. Parcesepe · Leopoldo J. Cabassa

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Abstract Public stigma is a pervasive barrier that prevents many individuals in the U.S. from engaging in mental health care. This systematic literature review aims to: (1) evaluate methods used to study the public's stigma toward mental disorders, (2) summarize stigma findings focused on the public's stigmatizing beliefs and actions and attitudes toward mental health treatment for children and adults with mental illness, and (3) draw recommendations for reducing stigma towards individuals with mental disorders and advance research in this area. Public stigma of mental illness in the U.S. was widespread. Findings can inform interventions to reduce the public's stigma of mental illness.

Keywords Public stigma · Mental illness · Systematic literature review

Introduction

Public stigma refers to a set of negative attitudes and beliefs that motivate individuals to fear, reject, avoid, and discriminate against people with mental illness (Corrigan and Penn 1999). This type of stigma is associated with lack of

engagement in mental health care and worse treatment outcomes (e.g., retention, adherence; U.S. Department of Health and Human Services 1999; New Freedom Commission on Mental Health 2003). Public stigma also results in discrimination, reduced autonomy and self-efficacy, and segregation (Corrigan and Shapiro 2010; Pescosolido et al. 2007a). For instance, individuals with mental illness are more likely to experience housing and employment discrimination and homelessness compared to people without mental illness (Corbiere et al. 2011; Corrigan et al. 2006; Corrigan and Shapiro 2010). Furthermore, stigmatizing beliefs about the competency of individuals with mental illness compromise individuals' financial autonomy, restrict opportunities, and may lead to coercive treatment and reduced independence (e.g., through institutionalization; Corrigan and Shapiro 2010; Pescosolido et al. 2007a). In all, public stigma toward mental illness matters as it “sets the context in which individuals in the community respond to the onset of mental health problems, clinicians respond to individuals who come for treatment, and public policy is crafted” (Pescosolido et al. 2010, p. 1324).

Over the past 25 years, numerous population-based studies have documented the levels of public stigma toward common mental disorders in the United States (U.S.). The Etiology and Effects of Stigma (EES) Model, developed by Martin et al. (2007), grows out of this emerging public stigma literature and presents a framework for understanding the factors that shape public stigma towards people with mental illness. The EES model posits that sociodemographic characteristics (e.g., gender, race, age, socioeconomic status) of both the individual with a mental disorder and the public influence the public's recognition, causal attributions, and assessment of individuals with mental illness (Martin et al. 2007). These attributions and assessments encompass individuals' beliefs about the causes, nature, and severity of the

A. M. Parcesepe (✉)
Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
e-mail: parcesep@email.unc.edu

L. J. Cabassa
School of Social Work, Columbia University, New York, NY, USA
e-mail: lj2139@columbia.edu

L. J. Cabassa
New York State Center of Excellence for Cultural Competence,
New York State Psychiatric Institute, New York, NY, USA

mental disorder, their expected outcomes, and their views about the usefulness and perceived effectiveness of treatments. In turn, these attributions and assessments are hypothesized to shape the public's stigmatizing beliefs and actions which can lead to stereotypes, discriminatory behaviors, and negative attitudes toward treatments.

Despite the growing number of population-based studies, to our knowledge, no systematic literature review currently exists that examines public stigma toward mental illness in the U.S. To address this gap, we conducted a systematic literature review to: (1) evaluate methods used to study the public's stigma toward mental disorders; (2) summarize stigma findings focused on the public's stigmatizing beliefs and actions and attitudes toward mental health treatments for children and adults with mental illness; and (3) draw recommendations for reducing public stigma towards individuals with mental disorders and advance research in this area. We use the EES as an organizing framework to present the results of our review, summarize common factors that shape the public's stigma toward children and adults with mental disorders, and identify targets for anti-stigma interventions.

Methods

Literature Search Strategy

Electronic bibliographic databases (i.e., PubMed, Medline, PsychInfo, Social Science Abstract) and manual searches were used to identify relevant publications. The following combinations of keywords were used to guide our search: mental illness, mental health, mental disorders, attitudes, beliefs, stigma, public opinion, and United States. Through these search terms 3,286 articles were initially identified. Abstracts of articles were then reviewed for relevance. Published articles in peer review journals were chosen if they met the following criteria: (1) used community probability samples of non-institutionalized adults or children residing in the U.S. and (2) reported findings relevant to stigma towards mental illness, such as attitudes toward mental health treatments, stigmatizing beliefs, and stigmatizing actions. Of the 3,286 articles initially identified 3,250 were rejected for one or more of the following reasons: not including a nationally representative sample, not focusing on the U. S., focusing on mental health interventions, analyzing mental health related measures, or being a conceptual or review piece. Thirty-six articles met our inclusion criteria and are the focus of our review.

Analytical Strategy

An abstraction form based on Lipsey and Wilson's (2001) recommendations was used to code study aims, research

questions and/or hypotheses, study designs, sampling strategies, measurements for independent and dependent variables, data analysis strategies, findings, main conclusions, and implications. Two reviewers working independently completed a review form for each article. Reviewers then met to compare and discuss their respective abstractions and reach consensus in instances where differences were found. This analytical approach enabled us to systematically review the existing evidence, identify patterns in research methodology and findings, and provide a comprehensive evaluation of the literature.

Results

Study Characteristics

Thirty-six articles covering 18 population-based studies were included in this review (see Table 1). Twenty of these articles included secondary data analysis of the 1996, 1998, 2002, or 2006 versions of the General Social Survey (GSS). The 1996, 1998, 2002, and 2006 surveys included special modules (e.g., MacArthur Mental Health Module, Pressing Issues in Health and Medical Care) designed to document the public's views of common mental disorders and mental health treatments. The 1998 and 2002 surveys included questions about children's mental health. The 2002 GSS included the National Stigma Study-Children module which asked respondents about their assessment, recognition, help-seeking preferences, causal attributions, and stigma related to children with attention deficit hyperactivity disorder (ADHD) or major depression. The GSS has been conducted since 1972 by the National Opinion Research Center at the University of Chicago and is considered one of the top U.S. public opinion surveys (Kuppin and Carpiano 2006). This survey uses a full probability sample of non-institutionalized adults in the U.S. and is conducted biennially (Schnitker et al. 2000).

Six articles used data from the National Comorbidity Survey and/or the National Comorbidity Survey Replication. Two articles examined a study administered by Harris Interactive (HI) which has a membership of over six million individuals who participate in online surveys. HI is a member of the Council of American Survey Research Organizations and acts in accordance with the Standards and Ethics for Survey Research (Walker et al. 2008). Child respondents aged 8 and older were children of adult members of HI and were randomly selected from HI's membership base. Age and sex of respondents were weighted to represent the U.S. population. Weighted samples from HI have been shown to be comparable to random samples of the U.S. population (Coleman et al. 2009; Walker et al. 2008). Two articles analyzed data from the Human Genome

Table 1 Study characteristics

First author	Year	Study	Sample size	Vignette	Racial/ethnic comparison groups	Mental health comparison groups	Outcomes		Respondents: adults or children
							Stigmatizing beliefs	Stigmatizing actions	
Anglin	2006	Human Genome Project	671	Y	W, AA	Depression, schizophrenia	✓		A
Anglin	2008	Human Genome Project	665	Y	W, AA	Depression, schizophrenia		✓	A
Blummer	2009	GSS 1996; 2006	300;397	Y	W, NW	Depression only		✓	A
Boyd	2010	Primary data collection	911	Y	None	Depression, schizophrenia	✓		A
Coleman	2009	HI	1,091	Y	W, AA, API, H	ADHD, depression		✓	C
Corrigan	2007	Family Stigma Survey	968	Y	W, NW	Schizophrenia, drug dependence	✓		A
Corrigan	2009	Mental Illness Stigma Study	815	Y	None	Mental illness, drug addiction	✓		A
Croghan	2003	GSS 1998	1,387	N	W, O	Anxiety, depression		✓	A
Diala	2000	NCS	5,877	N	W, AA	None		✓	A
Diala	2001	NCS	5,877	N	W, AA	None		✓	A
Gonzales	2005	NCS	5,877	N	W, AA, H,	None		✓	A
Gonzales	2009	NCS-R	5,691	N	W, AA, H,	None		✓	A
Kuppin	2006	GSS 1996	1,010	Y	None	Alcohol dependence, depression, drug dependence, schizophrenia		✓	A
Leaf	1987	Yale ECA	4,184	N	W, NW	None		✓	A
Link	1999	GSS 1996	1,444	Y	None	Alcohol dependence, depression, drug dependence, schizophrenia	✓		A
Martin	2000	GSS 1996	1,444	Y	W, NW	Alcohol dependence, depression, drug dependence, schizophrenia	✓		A
Martin	2007	GSS 2002	1,393	Y	B, O	ADHD, depression,	✓		A
McLeod	2004	GSS 1998	1,186	Y	W, B, O	ADHD, depression, ODD		✓	A
McLeod	2007	GSS 2002	1,139	Y	W, B, O	ADHD only		✓	A
Mojtabai	2007	NCS; NCS-R	5,388; 4,319	N	W, AA, H, O	None		✓	A
Mojtabai	2009	GSS 1998; 2006	1,387; 1,437	N	W, AA, H, O	None		✓	A
Mukolo	2011	GSS 2002	1,300	Y	W, B, O	ADHD, depression,	✓		A
Perry	2007	GSS 1996; 2002	193; 312	Y	None	Depression only		✓	A
Pescosolido	1999	GSS 1996	1,444	Y	W, AA, H	Alcohol dependence, depression, drug dependence, schizophrenia	✓		A
Pescosolido	2007a	GSS 2002	1,152	Y	W, B, O	ADHD, depression	✓		A

Table 1 continued

First author	Year	Study	Sample size	Vignette	Racial/ethnic comparison groups	Mental health comparison groups	Outcomes			Respondents: adults or children
							Stigmatizing beliefs	Stigmatizing actions	Attitudes towards mental health treatment	
Pescosolido	2007b	GSS 2002	1,062	N	B, O	None	✓		✓	A
Pescosolido	2008	GSS 2002	1,066	Y	B, O	ADHD, depression			✓	A
Pescosolido	2010	GSS 1996; 2006	1,956	Y	W, NW	Schizophrenia, depression, alcohol dependence	✓	✓	✓	A
Phelan	2000	Star 1950; GSS 1996	335; 653	N	W, NW	None	✓			A
Phelan	2006	GSS 1996; GDS	601; 426	Y	W, B, O	Depression, schizophrenia			✓	A
Schmitzker	2000	GSS 1996	1,444	Y	W, AA	Alcohol dependence, depression, drug dependence, schizophrenia			✓	A
Shim	2009	NCS-R	5,386	N	W, AA, H	None			✓	A
Swindle	2000	AVTM 1957; 1976; GSS 1996	2,460; 2,264; 1,444	N	W, NW	None			✓	A
Walker	2008	HI	1,318	Y	W, AA, API, H, O	ADHD, depression	✓	✓		C
Whaley	1997	Survey about attitudes towards individuals who are homeless and mentally ill	1,468	N	W, AA, AI, H, API	None	✓			A
Wirth	2009	KNP	172	Y	None	Alcohol abuse, depression	✓			A

GSS General Social Survey, HI Harris Interactive, NCS National Comorbidity Survey, NCS-R National Comorbidity Survey Replication, ECA Epidemiologic Catchment Area Study, GDS Genes, Disease, and Stigma Study, AVTM Americans View Their Mental Health Survey, KNP Knowledge Networks Panel Survey, Y yes, N no, W White, NW non-White, AA African American/Black, AI American Indian, API Asian or Pacific Islander, H Hispanic/Latino, O Other, ADHD Attention Deficit Hyperactivity Disorder, ODD Oppositional Defiant Disorder, A Adults, C Children

Project. One article analyzed data from a national probability sample of individuals surveyed about their attitudes towards homeless and homeless mentally ill people. One article analyzed primary data. Seven articles used data from the Family Stigma Survey, Mental Illness Stigma Study, Yale Epidemiologic Catchment Area Study, the Star 1950 Survey, the Genes Disease and Stigma Study, the 1957 and 1976 Americans View Their Mental Health Surveys, or the Knowledge Networks Panel Survey.

Twenty-eight articles conducted cross-sectional analysis. Eight articles conducted cohort longitudinal analysis comparing two or more panels of data. Vignette methodologies in which respondents were randomly assigned to hear descriptions of individuals with common mental disorders (e.g., major depression, ADHD) were used in 23 articles to assess different dimensions of stigma (e.g., recognition, causes). Twenty-six articles (Anglin et al. 2006, 2008; Blumner and Marcus 2009; Boyd et al. 2010; Corrigan and Watson 2007; Corrigan et al. 2009; Croghan et al. 2003; Diala et al. 2000; Diala et al. 2001; Gonzalez et al. 2005, 2009; Kuppin and Carpiano 2006; Leaf et al. 1987; Link et al. 1999; Martin et al. 2000; Mojtabai 2007, 2009; Pescosolido et al. 1999, 2010; Phelan et al. 2000, 2006; Schnitker et al. 2000; Shim et al. 2009; Swindle et al. 2000; Whaley 1997; Wirth and Bodenhausen 2009) surveyed adults about perceptions of mental illness among adults, seven (Martin et al. 2007; McLeod et al. 2004, 2007; Mukolo and Heflinger 2011; Pescosolido et al. 2007a, b, 2008) surveyed adults about perceptions of mental illness among children, two (Coleman et al. 2009; Walker et al. 2008) surveyed children about perceptions of mental illness among children, and one (Perry et al. 2007) compared adults' perceptions of mental illness among adults and children.

Study sample sizes ranged from 172 to 5,877. All the articles included in this review were published within the past 25 years, with the majority (94 %) published since 2000. Thirty articles included racial and ethnic comparisons. Table 1 illustrates outcomes examined for each article which included: stigmatizing beliefs, stigmatizing actions, and attitudes toward mental health treatments. Articles in this review examined public stigma towards descriptions of adults with depression, schizophrenia, alcohol dependency, and/or drug dependency and children with depression, attention deficit hyperactivity disorder (ADHD), and oppositional defiant disorder (ODD). In the following sections, we summarize study results organized by study outcomes. We present the general results of all studies and prioritize, when available, multivariate results.

Stigma Findings

As previously mentioned, the EES Model was used to organize our results (see Fig. 1). Overall, analysis of the 36

articles included in this review found that sociodemographic characteristics of the respondent and the target individual, personal contact with individuals with mental illness, and causal attributions were associated with stigmatizing beliefs, stigmatizing actions, and attitudes towards mental health treatments. Stigmatizing beliefs were associated with stigmatizing actions and attitudes toward mental health treatment. Assessment of mental illness and treatment was associated with attitudes towards mental health treatment.

Stigmatizing Beliefs

Four articles examined the public's stigmatizing beliefs of children with mental illness (Perry et al. 2007; Pescosolido et al. 2007a, b; Walker et al. 2008) and eleven examined the public's stigmatizing beliefs of adults with mental illness (Anglin et al. 2006; Boyd et al. 2010; Corrigan and Watson 2007; Corrigan et al. 2009; Link et al. 1999; Martin et al. 2000; Pescosolido et al. 1999, 2010; Phelan et al. 2000; Whaley 1997; Wirth and Bodenhausen 2009). Articles explored perceptions of dangerousness, criminality, shame, and blame of children with mental illness and perceptions of incompetency, dangerousness, blame, and punishment of adults with mental illness.

Perceptions of individuals with mental illness as dangerous to themselves and others are widespread among the general public (Link et al. 1999; Martin et al. 2000; Perry et al. 2007; Pescosolido et al. 1999, 2007a; Walker et al. 2008). Among adults, children with depression or ADHD were viewed as significantly more dangerous to others and themselves as compared to children with daily troubles or children with asthma (Pescosolido et al. 2007a). Similarly, children viewed peers with ADHD or depression as significantly more likely to be violent than peers with asthma (Walker et al. 2008). Adult respondents viewed adults with schizophrenia, depression, alcohol dependence, or drug dependence as more likely to be violent to others, compared to a person with 'normal' troubles (Martin et al. 2000; Pescosolido et al. 1999). Adult respondents were also significantly more likely to report a person with mental illness or a person addicted to drugs as dangerous, as compared to a person in a wheelchair (Corrigan et al. 2009).

Perceptions of individuals with mental illness as dangerous have increased over time. Among adults who associated mental illness with psychosis, the odds of describing a person with mental illness as violent in 1996 were 2.3 times the odds of describing a person with mental illness as violent in 1950 (Phelan et al. 2000). More recently, however, perceptions of dangerousness appear to have stabilized. Between 1996 and 2006, no significant differences were found in the public's perceptions of

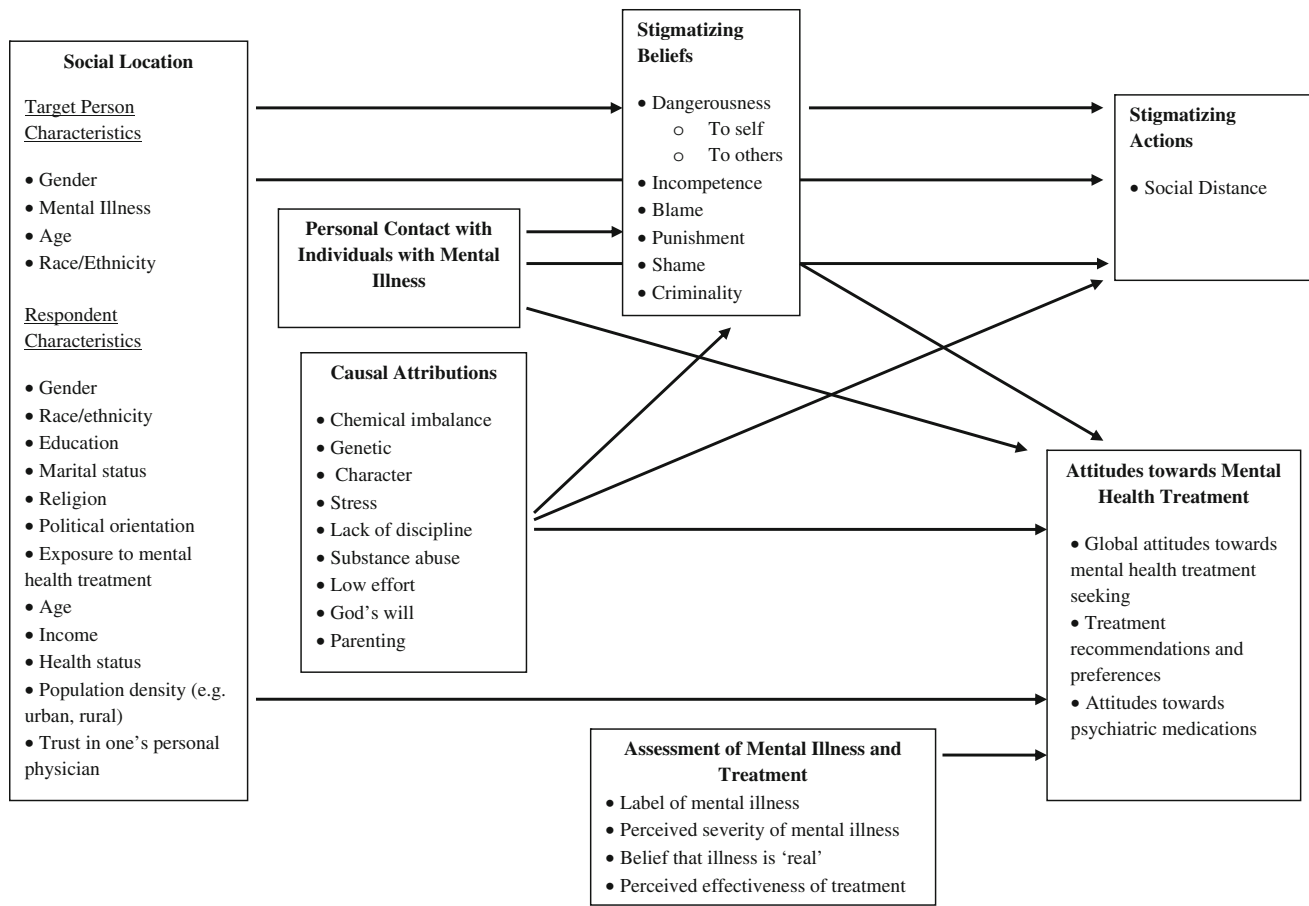


Fig. 1 Summary of literature review findings. *Note.* The EES Model (Martin et al. 2007) was used as an organizing framework for this figure

dangerousness of adults with schizophrenia or depression (Pescosolido et al. 2010).

Perceptions of dangerousness varied by mental disorder. Adults with drug dependence disorders were consistently viewed as the most likely of mental disorders investigated to be dangerous to themselves and others (Corrigan et al. 2009; Link et al. 1999; Martin et al. 2000). Adults with schizophrenia and alcohol abuse were also perceived as likely to be dangerous to themselves and others and more likely to be dangerous to others compared to those with depression (Anglin et al. 2006; Link et al. 1999; Martin et al. 2000). Adults with depression were perceived as likely to be dangerous to themselves (Pescosolido et al. 1999). Similarly, adult respondents viewed children with depression as likely to be dangerous to themselves, with the overwhelming majority of respondents viewing a child with depression as dangerous to him/herself (Pescosolido et al. 2007a). Children with depression were viewed as more dangerous to themselves than children with ADHD (Pescosolido et al. 2007a).

Perceptions of dangerousness were associated with causal attributions of mental illness. Causal attributions of genetics or chemical imbalance increased the odds of

perceiving a person with schizophrenia as dangerous to themselves and others and a person with depression as dangerous toward themselves (Pescosolido et al. 2010). These associations persisted from 1996 to 2006. In 2006, causal attributions of genetics or chemical imbalance also increased the odds of perceiving a person with depression as dangerous toward others (Pescosolido et al. 2010).

Perceptions of dangerousness also varied by sociodemographic characteristics. Children with depression were seen as more likely to be violent toward others than adults with depression (Perry et al. 2007). Compared to boys, girls were viewed as less dangerous both to self and others. Older children (14 years as compared to 8 years old) were viewed as less dangerous to others. Among adults, race was associated with perception of dangerousness. African American, Asian or Pacific Islander (API), and Hispanic individuals were more likely than White individuals to believe that individuals with mental illness are dangerous (Anglin et al. 2006; Corrigan and Watson 2007; Whaley 1997). Education was negatively associated with dangerousness with higher levels of education related to perceiving people with mental illness as less dangerous to themselves and others (Corrigan and Watson 2007; Pescosolido et al. 1999). Personal contact

with someone with mental illness was associated with decreased perceptions of dangerousness (Whaley 1997). However, the relationship between contact and perceptions of dangerousness varied by race. Among White individuals, increased contact was associated with decreased levels of perceived dangerousness. This relationship was not observed for Black, API, or Hispanic individuals (Whaley 1997).

Studies also explored individuals' beliefs about shame, blame, and punishment of individuals with mental illness. Child respondents believed that having a mental illness (i.e. depression or ADHD) was more shameful than having asthma, with depression more shameful than ADHD (Walker et al. 2008). Similarly, child respondents were more likely to blame the parents if a child has a mental illness (i.e. ADHD, depression) than if a child has asthma, and more likely to blame the parents if the child has depression than ADHD (Walker et al. 2008). Adult respondents were less likely to believe that individuals with schizophrenia should be blamed or punished for violent behavior, as compared to those with depression (Anglin et al. 2006).

Beliefs about blame and punishment varied by sociodemographic characteristics. African American adults were less likely than White adults to believe that such individuals should be blamed or punished for violent behavior (Anglin et al. 2006). Age and political orientation were associated with perceptions of blame and punishment. Respondents who were younger and those who were more conservative were more likely to believe that individuals should be blamed and punished for violent behavior, compared to those who were older and less conservative (Anglin et al. 2006). Women and those who were Protestant were less likely to believe that those with mental illness should be blamed for their behavior, compared to men and those who were not Protestant (Anglin et al. 2006). Income was positively associated with believing that individuals with mental illness should be punished for violent behavior (Anglin et al. 2006).

The public also endorsed stigmatizing beliefs of the competency of individuals with mental illness. Children with mental illness were more likely to be viewed as lazy than children with asthma, with children with depression viewed as lazier than child with ADHD (Walker et al. 2008). Adults with mental illness were viewed as less competent to make treatment-related and financial decisions as compared to 'troubled' individuals (Pescosolido et al. 1999). Perceived competency varied by mental disorder. Adults with schizophrenia and drug abuse disorders were perceived to be less competent to make treatment-related and financial decisions compared to individuals with depression, with the overwhelming majority of respondents viewing individuals with drug dependence as

not competent to make financial decisions (Pescosolido et al. 1999). Age of respondents influenced views of treatment-related and financial competency with older individuals viewing people with mental illness as less competent (Pescosolido et al. 1999).

Lastly, the public endorsed stigmatizing beliefs of the criminality of individuals with mental illness. For example, children viewed peers with mental illness as more likely to "get into trouble" than peers with asthma, with peers with depression more likely to "get into trouble" than peers with ADHD (Walker et al. 2008).

Stigmatizing Actions

Four articles examined stigmatizing actions towards children with mental illness (Coleman et al. 2009; Martin et al. 2007; Mukolo and Heflinger 2011; Walker et al. 2008) and six examined stigmatizing actions towards adults with mental illness (Boyd et al. 2010; Corrigan and Watson 2007; Corrigan et al. 2009; Link et al. 1999; Martin et al. 2000; Pescosolido et al. 2010). In all of these articles, stigmatizing actions were assessed through questions about preferences for social distance from individuals with mental illness. Social distance is a measure of exclusion of individuals in a variety of social situations (e.g., unwilling to work closely with someone, to have someone as a neighbor, to have someone marry into your family) because of their mental illness (Boyd et al. 2010). Social distance was the primary mechanism for researching and measuring stigmatizing actions in these articles.

Social distance from adults and children with mental illness was widespread among the general population. The preferences for social distance from children were significantly higher for ADHD and depression, compared to asthma and normal or daily troubles (Martin et al. 2007; Mukolo and Heflinger 2011). Adult respondents endorsed a greater desire for social distance from individuals with schizophrenia, depression, alcohol dependence, or drug dependence than from a person with 'normal' troubles (Link et al. 1999; Martin et al. 2000). Adult respondents were also significantly more likely to report avoiding a person with mental illness or a person addicted to drugs than a person in a wheelchair (Corrigan et al. 2009).

Social distance varied by mental illness. Among adults, social distance was greatest for those with drug abuse disorders, followed by alcohol abuse, schizophrenia and depression (Link et al. 1999; Martin et al. 2000). In the same studies, the overwhelming majority of respondents (72–90 %) endorsed desire for social distance from an adult with cocaine dependence; over one-third (38–47 %) also endorsed a desire for social distance from individuals with depression (Link et al. 1999; Martin et al. 2000).

Respondents were more likely to report avoiding a person with drug addiction compared to those with another mental illness (Corrigan et al. 2009). Overall, stigma towards adults with mental illness appears relatively stable over time. Between 1996 and 2006, there was no significant decrease in preference for social distance towards individuals with schizophrenia, alcohol dependence, or depression (Pescosolido et al. 2010). However, significantly more individuals were unwilling to have an individual with schizophrenia as a neighbor and to have a person with alcohol dependence marry into their family in 2006 as compared to 1996 (Pescosolido et al. 2010).

Among children, no significant difference was found in preference for social distance from peers with ADHD compared to peers with depression (Walker et al. 2008). Among adults, there was a trend towards greater preference for social distance from children with ADHD compared to children with depression (Martin et al. 2007).

Social distance varied by perceived causal attributions of mental disorders and perceptions of dangerousness. Among children, causal attributions of parenting, low effort, substance abuse, and stress were correlated with social distance while causal attributions of brain differences, genetics and God's will were not (Coleman et al. 2009). Among adults, child- and family-blaming attributions of bad character and lack of discipline in the home were associated with increased social distance from children with mental illness (Martin et al. 2007; Mukolo and Heflinger 2011). However, a composite measure of parental blaming attributions (i.e., way child was raised, lack of discipline in the home and/or watching violent TV) was not associated with social distance from children with mental illness (Mukolo and Heflinger 2011). Preference for social distance from adults with mental illness was reduced when causes were viewed as stress-related (Martin et al. 2000). Findings regarding the association between genetic or biological causal attributions and social distance from adults with mental illness were equivocal. When examined individually, Martin et al. (2000) found that genetic causal attributions decreased social distance from individuals with mental illness. However, a composite measure of neurobiological causal attribution (i.e., genetics and/or chemical imbalance) was either unrelated or increased preference for social distance from individuals with schizophrenia, depression, and alcohol dependence (Pescosolido et al. 2010). Perception of dangerousness to self and others was positively associated with preferences for social distance from adults and children with mental illness (Martin et al. 2000, 2007). Positive contact with someone with mental illness reduced desire for social distance from individuals with mental illness (Boyd et al. 2010).

Several sociodemographic characteristics were associated with social distance. Adult respondents preferred

greater social distance from children who are older (14 years old as compared to 8 years old; Martin et al. 2007). In addition, there was a positive association between adult respondents' age and social distance in that as age increased preference for social distance from the vignette child's family increased. Overall, women expressed less preference for social distance than men (Martin et al. 2007). Findings are equivocal as to whether race influences preferences for social distance. Martin et al. (2007) did not find a significant relationship between race and preference for social distance. However, Mukolo and Heflinger (2011) found that compared to White respondents, Black respondents preferred greater social distance from children with mental illness, but not from the child's family. There was a negative relationship between education and social distance from both the child and the child's family in that as years of education increased preference for social distance from the child and the family decreased (Mukolo and Heflinger 2011). People with higher incomes endorsed greater social distance (Mukolo and Heflinger 2011). Among children, however, there was no significant relationship between social distance and school location, region, grade level, or sex (Walker et al. 2008).

Attitudes Toward Mental Health Treatments

Twenty-three articles examined the public's attitudes toward mental health treatments in the following three areas: (1) global attitudes towards mental health treatment seeking, (2) treatment recommendations and preferences, and (3) attitudes toward psychiatric medications. Results for each of these areas are summarized below.

Seven articles (Anglin et al. 2008; Diala et al. 2000, 2001; Gonzalez et al. 2005, 2009; Mojtabai 2007; Shim et al. 2009) examined attitudes toward seeking professional mental health treatments using the following global indicators: willingness to seek professional help, comfort talking to a professional about emotional problems, perceived effectiveness of professional treatments, and perceived stigma associated with seeking professional care (e.g., feeling embarrassed if friends knew you were getting professional help for an emotional problem).

In general, the American public seems to hold positive attitudes toward seeking professional help for mental health problems and these attitudes seem to be improving over time. Mojtabai (2007) found that between 1990 and 2003 there were modest improvements in individuals reporting been willing, comfortable, and less embarrassed seeking professional help for a mental health problem. However, no significant changes in this time period were observed regarding the public's perceptions of the effectiveness of mental health treatments or the likelihood of

recovering from a mental illness without formal treatments. In both years, the public estimated that more than half of people with an emotional problem who see a professional are helped and that less than half of those who do not obtain professional help recover (Mojtabai 2007).

Studies also revealed that global attitudes towards seeking mental health treatment vary by sociodemographic characteristics and past exposure to mental health treatments. Older age and being female have been found to be associated with endorsing positive attitudes toward mental health treatments (Gonzalez et al. 2005). In fact, younger males (i.e., 15–17, 18–24) tend to report more negative attitudes toward mental health treatments than younger females (Gonzalez et al. 2005). In terms of racial and ethnic differences, no differences in global attitudes were reported between Latinos and Whites after adjusting for socioeconomic status (Gonzalez et al. 2005; Shim et al. 2009). African Americans, however, consistently reported more positive attitudes toward mental health treatment in willingness and comfort in talking with a professional, believing that mental health professionals can help people with schizophrenia and major depression, and feeling less embarrassed if friends knew they were seeking professional help compared to non-Hispanic whites, after adjusting for socioeconomic variables (Anglin et al. 2008; Diala et al. 2000, 2001; Gonzalez et al. 2005, 2009; Shim et al. 2009). However, African Americans were also more likely than Whites to believe that mental health problems would improve on their own. This belief was not found to be related to their positive predisposition toward the effectiveness of professional mental health care. Interestingly, among African Americans with and without a need for mental health care (e.g., those who experienced a major depressive episode) these positive attitudes seemed to turn negative once they were exposed to mental health services (Diala et al. 2000).

Lastly, the interactions of these global attitudes with age, race/ethnicity, gender, and education are associated with past use of mental health care in both specialty and general medical care settings (Gonzalez et al. 2009). For the use of specialty care, increased use was related to: African Americans endorsing more positive beliefs of treatment effectiveness, non-Latino whites and Latinos endorsing greater comfort levels talking to a professional, males endorsing greater willingness to seek help, and people with higher educational levels (e.g., college degree) reporting greater willingness to seek help. For the use of general medical care for mental health issues, increased use was associated with: African Americans endorsing greater willingness to seek help, non-Latino Whites and Latinos endorsing strong beliefs in treatment effectiveness, people with high school education endorsing greater willingness to seek help, and people with some college endorsing greater

comfort level and more positive beliefs in treatment effectiveness.

Twelve articles reported the public's opinions regarding treatment recommendations and preferences. Eight studies examined the public's treatment recommendations for adults (Blumner and Marcus 2009; Kuppim and Carpiano 2006; Leaf et al. 1987; Pescosolido et al. 1999, 2010; Phelan et al. 2006; Schnittker et al. 2000; Swindle et al. 2000), three examined the public's treatment recommendations for children (McLeod et al. 2007; Pescosolido et al. 2007a, b, 2008), and one compared treatment recommendations for adults and children (Perry et al. 2007).

Studies that focused on treatment recommendations for adults with mental illness consistently reported that the public endorses both informal and formal sources of treatment as viable approaches to cope with emotional distress (e.g., "nervous breakdown") and common mental disorders (e.g., depression). For example, two studies that examined changes over time in the public's attitudes toward mental health treatments found that informal sources of care, such as talking to family members, friends, spiritual leaders or clergy, were commonly endorsed options for depression (Blumner and Marcus 2009) and for a "nervous breakdown" (Swindle et al. 2000). Kuppim and Carpiano (2006) also found that all non-biological based treatments (e.g., therapist, self-help groups, talking to a friend, talking to clergy) were endorsed more frequently than biological-based ones (e.g., visiting a psychiatrist, prescription medications) for depression, schizophrenia, alcohol and substance abuse.

These general preferences for informal sources of help and for non-biologically based treatments do not preclude the American public from also endorsing more formal sources of mental health care. In fact, longitudinal studies that track changes in the public's attitudes toward mental health care have found that the public has become more receptive towards more formal, biological-based treatments over time, particularly for more serious mental illnesses (Blumner and Marcus 2009; Pescosolido et al. 2010; Swindle et al. 2000). Pescosolido et al. (2010) reported that between 1996 and 2006 there were significant increases in the public's endorsement of formal mental health treatments from both general and specialty care settings and for the use of prescription medications. Blumner and Marcus (2009) also found that during the same ten-year period the public's endorsement of biological-based treatments (e.g., visiting a psychiatrist, taking prescription medications) increased significantly for depression, particularly among respondents that were White, had a high school education, and lived in urban areas.

Treatment preferences, however, vary by mental disorder. For example, hospitalization was not a commonly supported treatment option for depression and alcohol

dependence, but was commonly supported for schizophrenia (Pescosolido et al. 2010). Moreover, support for hospitalization of individuals with schizophrenia increased significantly between 1996 and 2006 (Pescosolido et al. 2010). In general, the public endorsed biologically-based treatments for depression and schizophrenia but was reluctant to endorse such treatments for substance abuse disorders (Kuppin and Carpiano 2006). Other forms of treatments, like self-help groups and counseling, were viewed as more appropriate for treatment of substance use disorders (Kuppin and Carpiano 2006).

Moreover, the public's support for coercive mental health treatment (e.g., forced hospitalization and medication) varied by disorder and perceptions of danger, competence, and violence. Coercive mental health treatments were more readily endorsed for schizophrenia and drug dependence, as compared to depression and alcohol dependence (Pescosolido et al. 1999). Recommendations for coercive mental health treatment, particularly forced hospitalization, increased when the person was viewed as less competent to make treatment decisions and to be a danger to self or others (Pescosolido et al. 1999).

The public's causal attributions of mental disorders also influenced preferences for treatment. Endorsing neurobiological (e.g., chemical imbalance) or genetic causal attributions of common mental disorders (e.g., depression, schizophrenia) significantly increased the odds of endorsing biological-based treatments, particularly more extreme forms, such as use of prescription medications and hospitalization (Pescosolido et al. 2010; Phelan et al. 2006; Schnittker et al. 2000). Phelan et al. (2006) also found that endorsing genetic attributions for schizophrenia and depression did not increase the public's belief in the effectiveness of mental health treatments and in some cases led to greater pessimism about the effectiveness of mental health treatments.

Treatment recommendations for children focused mostly on ADHD and depression. The most popular treatment recommendations for ADHD were a combination of medication and counseling followed by counseling alone, no treatment, and medication alone (McLeod et al. 2007). The most popular sources of help for ADHD were teachers, doctors, and mental health professionals (e.g., psychologists), followed by family/friends, psychiatrists, and taking the child to a hospital (Pescosolido et al. 2008). For depression, the most popular sources of help were mental health professionals, doctors, teachers and psychiatrists, followed by family/friends, and taking the child to the hospital (Pescosolido et al. 2008). Across studies, the most consistent variables associated with recommending formal mental health treatments for children with ADHD and depression were identifying the conditions as 'real' mental illnesses and perceptions of illness severity and

dangerousness (McLeod et al. 2007; Pescosolido et al. 2008).

Sociodemographic characteristics were modestly and inconsistently associated with treatment recommendations for children with ADHD and depression. For example, African Americans were more likely than whites to prefer counseling or a combination of counseling and medication over no treatment for treating ADHD in children (McLeod et al. 2007), but also reported being less willing than whites to seek advice for depression and ADHD from teachers and parents and less likely to consult both teachers and mental health professionals (Pescosolido et al. 2008).

The public was most willing to support coercive treatments (e.g. forced outpatient visits, medications or hospitalizations) for children with asthma as compared to children with ADHD and depression and reported slight differences in their recommendations of forced treatments for these two mental disorders (Pescosolido et al. 2007a). Compared to a child with "daily troubles," respondents were more likely to support forced treatments for the child with depression across all three treatment types (i.e., outpatient visits, medications and hospitalization). For children with ADHD, however, respondents were only more likely to support forced outpatient visits as compared to the child with "daily troubles", but not willing to force children with ADHD to take medications or be admitted to a hospital (Pescosolido et al. 2007a).

Several sociodemographic and attitudinal factors influenced the public's endorsement of forced treatments for children with ADHD and depression (Pescosolido et al. 2007a). The public was less supportive of clinical or hospital-based treatments for fourteen-year olds compared to eight-year-olds with mental disorders. African Americans, those from "other" races, and older respondents were more supportive of coerced clinical visits, medications, and hospitalizations. Using the label of mental illness and perceptions of dangerousness were consistently related to supporting coercive treatments for children with ADHD and depression (Pescosolido et al. 2007a). Similarly, the public was more likely to endorse forcing children with depression to receive formal mental health treatments (e.g., visiting a physician or psychiatrist, going to a mental health clinic) than forcing adults with depression, particularly if they endorsed the belief that children with depression are more likely than adults with depression to be violent toward others (Perry et al. 2007).

Four articles (Croghan et al. 2003; McLeod et al. 2004; Mojtabai 2009; Pescosolido et al. 2007b) examined the public's attitudes toward psychiatric medications. The following attitudinal dimensions were studied: willingness to take medications for different circumstances (e.g., personal troubles, feeling depressed, intense fear, going crazy), willingness to give medications to children for

different conditions (e.g., oppositional defiant disorder, ADHD, depression), perceived effectiveness of psychiatric medications, and opinions about concerns and risks of psychiatric medications for children and adults.

The two studies (Croghan et al. 2003; Mojtabai 2009) that examined the public's attitudes towards psychiatric medications for adults present a complex picture. The American public tends to endorse positive attitudes toward the effectiveness of psychiatric medications in relieving symptoms of emotional problems for adults, but also expresses serious concerns about the use of these medications, particularly that they may be harmful. Many respondents were unwilling to use psychiatric medications for most situations presented. These attitudes, however, seemed to have become more favorable over time (from 1998 to 2006) in terms of the public's opinions regarding the benefits of psychiatric medications and their willingness to use them, particularly for panic attacks and depression (Mojtabai 2009). However, the public's concerns about the use of these medications (e.g., harmful to the body) did not show significant changes during this same time period (1996–2006). Factors associated with the public's willingness to use psychiatric medications for adults included: endorsing the effectiveness of medications, not having concerns about side effects, being female, having fewer than 12 years of education, being divorced or separated, having familiarity with the mental health system, and being in poor or fair health (Croghan et al. 2003). Moreover, racial/ethnic minorities, particularly African Americans, were less willing to take psychiatric medications compared to Whites (Mojtabai 2009).

The two studies (McLeod et al. 2004; Pescosolido et al. 2007b) that examined the public's attitudes and use of psychiatric medications for children showed that there still exists substantial stigma associated with the use of these medications for children. For example, McLeod et al. (2004) reported that the public does not endorse the use of these medications for oppositional defiant disorders and ADHD; the public remains cautious about the use of medications, particularly Prozac, even for a case that described suicidal statements. Similarly, Pescosolido et al. (2007b) found that the majority of their sample endorsed negative attitudes toward psychiatric medications for children including beliefs that the use of medications: has negative developmental effects, blunts children's personalities, and prevents families from working out problems, among others. Factors associated with the public's willingness to use psychiatric medications in children include: trust in one's personal physician, perceived efficacy of these medications, and the respondents own willingness to take psychiatric medications. In addition, individuals who reported negative experiences with someone with mental illness were significantly less likely to endorse the use of

psychiatric medications for children (Pescosolido et al. 2007b).

Discussion

Our literature review was conducted to summarize findings from population-based studies in the U.S. in order to inform future research and interventions to reduce public stigma of individuals with mental illness. Children and adults endorsed stigmatizing beliefs of people with mental illness, especially the belief that such individuals are prone to violent behaviors, and stigmatizing actions, in the form of social distance. Stigmatizing beliefs about the dangerousness of people with mental illness have increased over time. Beliefs of shame, blame, incompetency, punishment, and criminality of people with mental illness are common. Stigmatizing beliefs and stigmatizing actions varied by mental disorder and sociodemographic characteristics. Children with depression and adults with drug dependence were consistently the most stigmatized of groups investigated. Perceptions of dangerousness and causal attributions were significantly associated with social distance.

In general, the American public seems to hold positive attitudes toward seeking professional help for mental health problems. These attitudes vary by sociodemographic characteristics and past exposure to mental health treatments and seem to be improving over time. Support for coercive mental health treatment (e.g., forced hospitalization and medication) varied by the severity of the disorder and perceptions of dangerousness and competence. The public endorses both informal and formal sources of treatment to cope with common mental disorders in adults and reports a preference for formal treatments, particularly a combination of medication and counseling, over informal care for children with mental disorders. In general, the U.S. public expressed conflicting views toward the use of psychiatric medications in adults—endorsing their effectiveness at the same time as they expressed serious concerns about their use and strong reservations toward the use of these medications among children. Causal attributions and assessment of mental illness were associated with attitudes towards mental health treatments. For example, endorsing a neurobiological causal attribution of mental illness was associated with increased support for biologically-based treatments. Perceived severity of mental illness was associated with greater support for formal treatment for children with depression or ADHD. Lastly, sociodemographic characteristics (e.g., gender, age, race/ethnicity) and personal contact with individuals with mental illness were associated with stigmatizing beliefs, stigmatizing actions, and attitudes towards mental health treatments.

Methodological Issues

In order to understand the current knowledge regarding public stigma of mental illness, the methods used to create this evidence must be examined. Methodological issues relate to sampling, design, and outcomes warrant attention. The majority ($n = 34$) of articles in this review assessed adults' perceptions of mental illness in either children or adults. Fewer ($n = 2$) assessed children's views of mental illness. More research is needed that explores children's perceptions of childhood mental illness, especially as the existing evidence suggests differences between adults' and children's perceptions of childhood mental illness and related stigma. For example, the influence of race/ethnicity on stigmatization of childhood mental illness appears to operate differently for children and adults. Among adults, the relationship between race/ethnicity and stigmatizing beliefs of childhood mental illness was not significant while among children, stigmatizing beliefs differed significantly by race/ethnicity.

While most ($n = 30$) articles included racial and ethnic comparisons, no study included analysis of other cultural indicators. Cultural indicators, such as acculturation or English language proficiency, should be explored given that stigma seems to vary by these indicators. For example, levels of acculturation have been found to be associated with individuals' assessment of and treatment preferences for depression (Cabassa et al. 2007; Kumar and Nevid 2010; Wong et al. 2010). The influence of cultural variations on stigma should be explored further as such knowledge can inform the tailoring of anti-stigma interventions. In addition, only one study (Whaley, 1997) assessed stigma among Native Americans. More studies are needed to explore stigma in this diverse population.

The designs of studies reviewed presented several limitations. Most ($n = 28$) articles included in our review conducted cross-sectional analysis of data; thus, causal inferences are not possible. While some ($n = 8$) studies analyzed two or more panels of data, more longitudinal studies are needed to understand causal relationships in the stigma of mental illness between assessment, causal attribution, and stigmatizing behavior as well as changes in these variables over time.

The majority of articles ($n = 23$) utilized vignette methodology. The use of vignettes may reduce bias related to social desirability by capturing the public's reaction to a hypothetical situation rather than reports of past or present behaviors and facilitates the examination of the public's understanding, evaluation, attitudes, and beliefs related to a specific scenario without having to wait for that situation to arise (Gilner et al. 1999; Lau and Takeuchi 2001). However, more studies are needed that examine reports of respondents' past behaviors, especially as differences may

exist between reports of past behavior and reports of one's response to hypothetical situations (Link et al. 2004). Studies included in this review also explored a limited number of diagnostic categories (e.g. ADHD, depression, schizophrenia). More information is needed about a wider range of mental disorders as public stigma seems to operate differently across diagnoses. Lastly, articles examined a limited number of outcomes. Most assessed respondents' attitudes toward treatment. Fewer explored respondents' stigmatizing actions which limit opportunities for people with mental illness, especially in relation to employment and housing (Corrigan and Shapiro 2010; Hogan 2003; Link et al. 1997). Increased knowledge of the public's stigmatizing actions is essential to inform the development of effective anti-stigma interventions (Link et al. 2004).

Research and Practice Implications to Reduce Public Stigma

Our review points to several areas that can help inform research and interventions to reduce public stigma toward mental illness and treatments. Given that the conception of individuals with mental illness as dangerous was consistently associated with social distance and has not decreased over time, the media should resist portraying individuals with mental illness as violent and should promote a more balanced portrayal of mental illness. A study of the coverage of mental health issues in large U.S. newspapers found that dangerousness was the most common theme of mental health-related articles, with 39 % of articles about mental health focused on dangerousness and violence (Corrigan et al. 2005). Advocacy groups, such as the National Alliance on Mental Illness and Mental Health America, should continue to challenge stigmatizing images in the media when they appear and work with journalists to disseminate alternative, normalizing images of mental illness. Government agencies (e.g., National Institute of Mental Health, Centers for Disease Control and Prevention) and professional organizations (e.g., National Association of Social Workers, American Psychiatric Association) should also work closely with the media to provide more factual information about mental illness and how to best communicate to the public mental health issues and treatments.

Anti-stigma interventions should normalize the experience of mental illness and target perceptions that people with mental illness are dangerous. Such interventions can be integrated into school-based curriculum and target sociodemographic groups (e.g., men, those with fewer years of education) that consistently endorse negative views of people with mental illness. While research remains limited, anti-stigma interventions in U.S. high schools have been shown to improve attitudes towards mental health

treatment and increase mental health literacy (Jorm and Griffiths 2008). Media (e.g., TV, radio, internet, video games, smart phones) play a central role in the lives of many individuals and have the potential to perpetuate stigmatizing beliefs toward mental illness (Klin 2008). However, media can also serve as a powerful tool to deliver anti-stigma messages and promote help-seeking behaviors (Ritterfeld and Jin 2006). For example, internet-based interventions to increase mental health literacy have shown some impact (Jorm and Griffiths 2008). More research is needed regarding how media can most effectively decrease public stigma of individuals with mental illness.

Given that sociodemographic characteristics (e.g., gender, age) influenced respondents' stigmatizing beliefs and actions, anti-stigma interventions should consider tailoring to the sociodemographics of the intended audience to increase audience involvement and engagement, two important pre-requisites for attitudinal and behavioral changes (Sood 2002). Entertainment-education (EE) strategies that incorporate educational messages into popular entertainment content (e.g., soap operas, radio shows, sitcoms) to educate the public about health and social issues (Singhal and Rogers 1999) can be used to reduce stigma in the general public. These strategies use narrative-based approaches to tailor the delivery of health information to different audiences and provide a promising approach to increase knowledge of mental illness, model appropriate help-seeking behaviors, and reduce mental health stigma (see Cabassa et al. 2010; Ritterfeld and Jin 2006; Unger et al. 2012 for examples of using EE to reduce stigma).

Positive personal contact with a person with mental illness was significantly associated with lower levels of endorsing stigmatizing beliefs and actions. Given these consistent findings, anti-stigma interventions should focus on increasing positive personal contact with people living with mental illness (Thornicroft et al. 2008), target key groups in positions of power (e.g., landlords, employers), and should incorporate messages about the ways in which stigma and discrimination impede life goals and opportunities (Corrigan 2011). In addition, interventions should be tailored to the concerns, resources, and social location of a well-defined locale or group (Corrigan 2011). Such tailoring can increase the relevancy and effectiveness of the intervention. Furthermore, multiple, continuous contacts with individuals with mental illness should be encouraged as multiple positive contacts more effectively reduce stigma than a single encounter (Corrigan 2011). The Mental Health Commission of Canada's Opening Minds Initiative uses direct, positive contact with people with mental illness and provides an example of a systematic, population-level intervention to end public stigma of mental illness (Stuart 2009).

While assessment of mental illness was associated with attitudes towards mental health treatment, the nature of the association between assessment of mental illness and stigmatizing actions and beliefs remains unclear. Some anti-stigma interventions have been based on the assumption that increased awareness and recognition of mental illness will lead to reductions in stigma (Thornicroft et al. 2008). However, increased mental health literacy has been associated with unchanged or even increased levels of stigma (Angermeyer et al. 2009). More research is needed to examine the pathways through which assessment of mental illness influences stigmatizing actions and beliefs in order to develop more effective anti-stigma messages and interventions.

Findings related to the relationship between social distance and causal attributions remain equivocal. Among children, causal attributions of parenting, low effort, substance abuse, and stress were associated with increased social distance. Among adult respondents, one article found that genetic causal attributions reduced social distance while another found that neurobiological causal attributions were either unrelated or increased social distance. These findings indicate that interventions that focus on biological and genetic causal attributions may be ineffective at reducing social distance (Jorm and Griffiths 2008). Research is needed on alternate approaches to reduce stigma. In addition, anti-stigma messages need to be congruent with the public's perceptions of the causes of mental illness by focusing on specific disorders instead of a catch all category like 'mental illness', and should incorporate the multiple causal attributions that people endorse about specific mental disorders. Further research is needed to identify strategies that can effectively reduce social distance by targeting causal attributions and stigmatizing beliefs.

A fertile area for future work is to develop strategies to reduce stigmatizing beliefs associated with mental health care, including the use of psychiatric medications. Mental health clinicians should openly engage clients in a dialogue about the social impacts of mental health care and use psychoeducational and motivational approaches to discuss treatment options and address common concerns about treatments (e.g., medication side effects). Primary care providers are uniquely positioned to engage in such conversations as trust in one's personal physician was found to be significantly related to decreased apprehension and increased willingness to take psychiatric medications. In addition, fear of the stigmatizing effects of treatment can be reduced by providing care in less stigmatizing settings like primary care offices, community centers, and schools.

Our literature review has several limitations. While a thorough review of electronic bibliographic databases and manual searches was conducted, it is possible that we have

missed articles that met our eligibility criteria. In addition, the coding of articles in this review was subjective. To address this, two reviewers independently coded each article. Reviewers compared their individual coding and reached consensus when differences existed. Notwithstanding these limitations, our findings have meaningful implications for future research and the development of anti-stigma interventions.

Conclusion

Public stigma of mental illness in the U.S. continues to be widespread among children and adults. Our literature review summarizes population-based studies' findings on the public's stigmatizing beliefs and actions and attitudes toward mental health treatments for children and adults with mental illness, highlights avenues for future research in this area, and can serve as a point of departure to inform future anti-stigma interventions.

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