

The impact of contact on stigmatizing attitudes toward people with mental illness

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Abstract

Background: A growing body of research suggests that personal experience with people who have a mental illness can reduce stigmatizing attitudes towards mental illness. However, the generalizability of these findings has been restrained by their samples and operational definitions of contact and stigma.

Aims: To test the contact-stigma link using a nationally representative sample and comprehensive measures of both contact and stigma.

Method: Data were collected in a 1990 American telephone survey of attitudes towards homelessness and homeless people with mental illnesses. By telephone, 1507 respondents completed measures of the perceived dangerousness of people with mental illnesses and their contact experiences with mental illness. A subsample of 640 respondents was read a vignette of a character with mental illness and then completed measures of their desired social distance from the character and the perceived dangerousness of the character. All respondents completed measures of political conservatism, social desirability, and anomia as well.

Results: As total contact increased, the perceived dangerousness and desired social distance from the vignette character decreased, as did the perceived dangerousness of people with mental illnesses in general. However, the contact types did not consistently predict the vignette stigma measures.

Conclusion: While more research is needed to clarify and extend these findings, this study provides strong evidence for the importance of different contact types in reducing stigmatizing attitudes and the potential usefulness of incorporating contact into any stigma reduction intervention.

Declaration of interest: None.

Keywords: stigma, mental illness, contact, dangerousness, attitudes.

Introduction

Mental illness is one of the most stigmatized conditions in our society (Albrecht *et al.*, 1982; Corrigan & Penn,

1999; Tringo, 1970). People with mental illnesses experience all of the key features of the stigma process; they are officially tagged and labeled, set apart, connected to undesirable characteristics, and

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broadly discriminated against as a result (Corrigan & Penn, 1999; Link *et al.*, 1989). A central aspect of stigma for people with mental illnesses is the perception that they are dangerous and unpredictable (Link & Cullen, 1986; Link *et al.*, 1999; Nunnally, 1961). A growing body of research suggests that personal experience with people who have a mental illness can reduce these stigmatizing attitudes (Corrigan *et al.*, 2001; Holmes *et al.*, 1999; Link & Cullen, 1986; Penn *et al.*, 1994; Roth *et al.*, 2000).

However, in the absence of real world experience with mental illnesses, people must rely on their community's messages and the media for cues (Link & Cullen, 1986). The vast majority of Americans report receiving information about mental illness from the mass media (Wahl, 1992). In our society, these images are typically inaccurate and overwhelmingly negative, characterizing people with mental illnesses as violent, dangerous, unpredictable, incompetent, and unlikable (Wahl, 1992; Wilson *et al.*, 1999). Through media exposure, the public learns that people with mental illnesses are dangerous and that they should be avoided.

The impact of stigma

Stigma has a significant negative impact on the psychosocial functioning of people with mental illnesses through both experienced and anticipated discrimination. People who have been patients in psychiatric hospitals report a wide range of discriminatory experiences in both occupational and social settings, including being turned down for jobs for which they are qualified, being counseled to lower their expectations for a productive life, being denied insurance coverage,

being turned down for housing, and being rejected frequently in social situations (Page, 1995; Wahl, 1999). In the workplace, researchers have found that people who have received the label 'mentally ill' are underemployed and earn less income than people with the same psychiatric difficulties who have not received the label (Link, 1987). Even in the absence of direct discrimination, people with mental illnesses may anticipate stigmatizing responses at work and in relationships and become preoccupied with concealing their status (Smart & Wegner, 1999; Wahl, 1999). Anticipation of negative responses can also lead people with mental illnesses to withdraw from or limit their social and occupational functioning (Link *et al.*, 1987, 2001; Perlick *et al.*, 2001).

The impact of stigma is psychological as well. People who have been treated for mental illnesses report emotional reactions to stigma experiences, ranging from angry and hurt to sad and discouraged (Wahl, 1999). Although some find that stigma makes them more determined to succeed, many people who have been patients in psychiatric hospitals report that their encounters with stigma have a lasting negative impact that contributes to lower self-esteem, social withdrawal, and reduced trust in others (Markowitz, 1998; Wahl, 1999). People with mental illnesses who anticipate stigmatizing responses experience greater depression and lower self-esteem as well, even when controlling for baseline depression and self-esteem (Link *et al.*, 1997, 2001; Markowitz, 1998). The psychological sequelae of stigma for people with mental illnesses have been shown to persist despite psychiatric treatment and recovery from mental illness (Link *et al.*, 1987, 1991, 1997). In sum, stigma poses a

significant problem for people with mental illnesses through the distress, discrimination, and rejection it causes.

Contact with people with mental illnesses

Fortunately, the public's stigmatizing attitudes towards people with mental illnesses appear amenable to change through contact in which the underlying beliefs about people with mental illnesses are challenged. Research has consistently linked contact with people with mental illnesses to less stigmatizing attitudes towards people with mental illnesses (e.g., Corrigan *et al.*, 2001; Holmes *et al.*, 1999; Link & Cullen, 1986; Penn *et al.*, 1994; Roth *et al.*, 2000). It seems likely that through these encounters, members of the public learn that people with mental illnesses are not the dangerous 'others' they had expected. Consequently, they feel less fearful of people with mental illnesses and are less compelled to seek social distance.

Different types of contact with mental illness appear to be related to less stigmatizing attitudes. Both personal and professional contact with people with mental illnesses have been linked to reduced stigma. Researchers have found that individuals who have family or friends with mental illness perceive people with mental illnesses in general as less dangerous and desire less social distance from them (Corrigan *et al.*, 2001; Holmes *et al.*, 1999; Link & Cullen, 1986; Penn *et al.*, 1994, 1999). While the literature is somewhat mixed, this finding appears to extend to professional relationships as well. Multiple studies have documented that perceived dangerousness and other negative attitudes toward people with mental illnesses are lower in

people who work or volunteer at mental health facilities (Corrigan *et al.*, 2001; Link & Cullen, 1986; Roth *et al.*, 2000; Rousseau & de Man, 1998). Taken together, these findings on personal and professional contact indicate that different types of contact are related to less stigmatizing attitudes towards people with mental illnesses. However, they do not address the question of causality.

To examine whether the contact-stigma relationship is due to pre-existing positive attitudes toward mental illness (i.e., people who already have less stigmatizing attitudes seek out contact), Link & Cullen (1986) compared the impact of contact that was more likely to be voluntary (e.g., work with people with mental illnesses) with contact that was less likely to be voluntary (e.g., hospitalized family member) in a mail survey of two Midwestern samples. They reasoned that the impact of voluntary contact might be explained by pre-existing positive attitudes; however, any positive impact of involuntary contact must be due to the contact itself. They found no difference between the more voluntary and less voluntary contact groups, supporting the notion that contact itself has a causative role in the contact-stigma relationship.

Additional support for the causative role of contact comes from laboratory studies of contact and stigma. In Corrigan *et al.*'s 2001 study, research volunteers listened to a 10-min presentation by a high-functioning individual with severe mental illness and then engaged in a 5-min discussion with the individual about living with mental illness. In comparison with respondents who did not receive this contact, respondents who were in the contact condition later endorsed more positive views of people with mental

illnesses (Corrigan *et al.*, 2001). These results are similar to those in Desforges *et al.*, 1991 study of attitudes towards people with mental illnesses, in which undergraduates performed cooperative learning tasks with a confederate whom had been described as a former mental patient. Undergraduates who collaborated with the confederate endorsed more positive and accepting views of people with mental illnesses following the exercise (Desforges *et al.*, 1991). These studies suggest that contact randomly assigned in a laboratory setting can also create a reduction in stigmatizing attitudes.

The findings from this diverse group of studies suggest that some types of contact with people with mental illnesses are associated with more positive attitudes toward people with mental illnesses and that this relationship is not wholly due to pre-existing positive attitudes. However, the generalizability of these studies' findings has been restrained by their samples and operational definitions of contact and stigma. These studies relied upon relatively small samples of local populations and students. Contact was measured on a limited basis and focused on select types of contact experiences. Given stigma's significant negative impact on the functioning and well being of people with mental illnesses, a rigorous test of the contact-stigma link using a nationally representative sample and comprehensive measures of both contact and stigma is needed to facilitate the development of effective contact-related stigma interventions.

The present study

In this paper, we investigate the relationships between various types of

contact, perceived dangerousness, and desired social distance. This US telephone survey consists of measures of contact and the perceived dangerousness of people with mental illnesses in general, as well as a mental illness vignette with accompanying measures of perceived dangerousness of and desired social distance from the vignette character. The original study from which the data were drawn focused on homelessness and was not designed to assess attitudes toward people with mental illness. However, the data set provides valuable information concerning the research issue we seek to address.

We hope to make several contributions to the discussion of the contact-attitude link. To increase the generalizability of the findings, we used data gathered from a large nationally representative sample. We included a contact questionnaire that covered a wide variety of contact types, allowing for a clearer understanding of how different forms of contact relate to stigma. This study also builds upon previous research by using an operational definition of stigma that includes both perceived dangerousness and desired social distance. Finally, this study expands upon earlier studies by including a vignette of a character with mental illness and measures of stigmatizing attitudes toward the character. The inclusion of both vignette-specific and standard questionnaires allows for the comparison of people's attitudes toward a specific person (i.e., the vignette character) with their attitudes toward people with mental illnesses in general.

In line with earlier studies, we hypothesized that more contact experiences of any kind would predict more positive attitudes towards people with mental illnesses, both in terms of dangerousness

and social distance. We expected that this relationship would be evident both in the general measures of dangerousness and in the vignette measures of dangerousness and social distance.

Second, we hypothesized that varied types of contact would be associated with less stigmatizing attitudes. We expected that contact, whether personal or impersonal, intentional or unintentional, would predict less stigmatizing attitudes on the general measure of dangerousness and on vignette measures of dangerousness and social distance. One reason for this stems from the strong stereotype of dangerousness portrayed in mass media depictions of people with mental illness (Wahl, 1992). Any contact, we reasoned, would challenge this prevalent and strong stereotype. To test this hypothesis, four contact experiences were analyzed separately. The contact types were (1) *family contact* (i.e., having a history of psychiatric hospitalization oneself or in one's parent, child, or sibling), (2) *friend/spouse contact* (i.e., having had a close friend or spouse with a history of psychiatric hospitalization), (3) *public contact* (i.e., having seen people who appear to be mentally ill in public places), and (4) *work contact* (i.e., having worked or volunteered at a mental health facility).

These contact types were selected because they vary in significant ways. One's relationship with a family member or friend who has a mental illness is typically more personal than one's relationship with people with mental illnesses one sees in public or with whom one works. Within the more personal relationships, it is likely that contact with a relative differs from contact with a friend or spouse in that one's relationship with the latter tends to be chosen. Similarly, contact with people with mental illnesses

in public and contact in the workplace differ in that public contact is not sought out, while work contact is chosen.

While these four contact types are qualitatively different in how personal the relationships are and how intentional the contact may be, we hypothesized that each of these contact types may lead to a reduction in stigmatizing attitudes. As such, it was expected that each of the four contact types would predict lower general dangerousness, vignette dangerousness and social distance.

Finally, we included several additional variables to control for respondent characteristics. An alternative explanation for any contact–stigma association is that sociodemographics variables (i.e., age, gender, ethnicity, education, and income) and other respondent variables, such as political conservatism, anomia, and social desirability, are responsible for both seeking out contact and shaping one's attitudes towards people with mental illness. To rule out this possibility, we controlled for these variables in the analyses.

Method

Sample

The data were collected in a 1990 national telephone survey of attitudes toward homelessness and homeless people with mental illnesses (cf. Link *et al.*, 1994, 1995; Phelan *et al.*, 1997). Stratified cluster sampling was employed to oversample residents of the 20 largest Primary Metropolitan Statistical Areas (PMSAs). Probability samples of households with telephones were drawn using the two-stage strategy proposed by Waksberg (1978). Respondents were selected from all adults aged 18 or older in each household by a modified method

designed by Kish (1949). The response rate was 63%, yielding a total sample of 1507. The vast majority (95%) of sampled telephone numbers was reached, so the response rate reflects refusals, not failures to make contact.

All results were weighted to account for PMSA-based stratification, number of people in each household, and number of telephone numbers in a household. Checks of possible sample selection bias revealed that the weighted data were largely comparable with 1990 census data. The sample slightly underrepresented Latinos because interviews were conducted only in English. Women, people aged 25 to 54, and married people were slightly overrepresented. Education presented the largest discrepancy; people with more than a high school education were overrepresented by 11%. Descriptive data on the participants' demographic characteristics are shown in Table 1.

Measures

General perceived dangerousness

The general dangerousness scale is a seven-item measure of the perceived dangerousness of people with mental illnesses as a group ($\alpha = 0.66$). General dangerousness statements included: 'It's only natural to be afraid of a person who is mentally ill' and 'Most people who have been mentally ill are no more dangerous than the average person' (reverse scored). Respondents indicated their endorsement of each item on a four-point scale (definitely true, probably true, probably false, definitely false). Answers to the items were averaged to provide a mean general dangerousness score. Higher scores on this scale indicated greater perceived dangerousness of people with mental illnesses in general. The participants' mean score on this scale was 2.38 ($SD = 0.55$).

Contact questionnaire

The contact questionnaire covered a range of contact types and relationships. Sample items included: 'Have you had a close friend who was ever hospitalized for mental illness', 'Have you ever been in a mental hospital as a visitor', and 'How frequently are you in a public place where you see someone who seems to be mentally ill.' Each item was scored 1 if yes and 0 if no with one exception; the item on frequency of public contact was scored 1 = often, 0.67 = sometimes, 0.33 = almost never, 0 = never. Table 2 provides the weighted percentage of respondents endorsing each item.

A total contact score and four contact type variables were created; their inter-correlations can be found in Table 3. As indicated in Table 2, 10 items from the scale were summed to create the total contact score ($\alpha = 0.81$). The participants' scores on this measure ranged from 0.00 to 6.33 types of contact experiences with a mean score of 1.39 ($SD = 1.19$). The four individual measures of contact were operationalized as follows. Family contact was a dummy variable that indicated whether the respondent had a personal history of psychiatric hospitalization or a parent, child, or sibling who had been in a psychiatric hospitalization. Friend/spouse contact was a dummy variable that indicated whether the respondent had had a close friend or spouse who had been in a psychiatric hospital. Public contact was defined as the frequency of having seen someone in a public place who appeared to be mentally ill (i.e., never = 0; sometimes = 0.33; almost never = 0.66; often = 1.00). Work contact was a dummy variable that indicated whether the respondent had ever worked or volunteered at a mental health facility.

Table 1: Descriptive statistics on sample characteristics ($n = 1507$)

Variable	<i>n</i>	Weighted %
Gender		
Male	646	43.0
Female	858	57.0
Ethnicity		
Black	169	10.4
Hispanic	62	4.0
White	1221	82.7
Asian–Pacific-Islander	26	1.6
American Indian	17	1.2
Other	3	0.2
Education		
0–8 years	55	3.5
Some high school	155	11.1
High school	496	35.3
Technical school	30	2.2
Some college	342	23.4
College	252	15.4
Graduate school	171	9.1
Income (\$)		
0–19 999	390	25.1
20 000–29 999	335	24.2
30 000–39 999	214	15.4
40 000–49 999	177	12.9
50 000–74 999	205	14.2
75 000 +	135	8.3
Political conservatism		
Very conservative	168	11.0
Somewhat conservative	481	31.4
Moderate	454	33.1
Somewhat liberal	273	18.0
Very liberal	106	6.5

Vignette measures

In addition to the survey-based items, all respondents were read a vignette about a homeless person and were asked for their reactions to and opinions of the vignette character. A random subsample of respondents ($n = 640$) was selected to receive a vignette in which the character had a history of mental illness. Only this

subsample of respondents was included in vignette-related analyses here. The vignette experiment randomly varied other characteristics as well, including demographic variables, veteran status, criminal history, and substance abuse history. In the following sample vignette, the sentences in brackets show information that was included or omitted to

Table 2: Descriptive statistics on mental illness contact items ($n = 1507$)

Contact type	<i>n</i>	Weighted %
Any first-degree relative or self hospitalized	154	10.2
Self hospitalized	35	2.3
Parent hospitalized	46	3.1
Child hospitalized	20	1.3
Sibling hospitalized	60	4.0
Other relative hospitalized	61	4.1
Spouse or close friend hospitalized	505	33.6
Spouse hospitalized	15	1.0
Close friend hospitalized	494	32.8
Worked or volunteered in mental health	384	25.5
Visited psychiatric hospital	728	48.3
Seen someone in public place who seems mentally ill		
Often	189	12.5
Sometimes	535	35.5
Almost Never	615	40.8
Never	167	11.1

Note. All items were scored 1 = yes and 0 = no, except for 'Seen someone in public place who seems mentally ill', which was coded 1 = often, 0.67 = sometimes, 0.33 = almost never, 0 = never.

denote veteran status, criminal history, and substance abuse history.

Paul Johnson is a 45-year-old White man with a high school education. He is divorced. [He is also a veteran.] He is working and has been living in a shelter for 6 months because he could not manage his own affairs. He keeps in touch with his family. He feels so depressed he thought there was no point in living anymore and has been hospitalized for mental illness. [He is an alcoholic./He is addicted to drugs./He is addicted to drugs and is an alcoholic.] [He also has a criminal record for attempted murder/armed robbery/cashing stolen checks/selling goods that were known to have been stolen/shoplifting/loitering in a public area.]

Having read the vignette, the interviewer asked the respondents for their views on the vignette character with respect to a variety of topics. For this study, the respondents' beliefs about the character's dangerousness and their desire for social distance from the character were the outcome variables of interest. Veteran status, criminal history, and substance abuse history were included in analyses to control for vignette-related characteristics, apart from mental illness status, that could potentially have a significant negative impact on respondents' attitudes toward the vignette character.

Vignette perceived dangerousness

A two-item scale ($\alpha = 0.62$) assessed perceptions of the vignette character's dangerousness. Respondents were asked to indicate whether the character

Table 3: Pearson product-moment intercorrelations of contact variables

	Total contact	Family contact	Friend/spouse contact	Public contact	Work contact
Total contact	–				
Family contact	0.44**	–			
Friend/spouse contact	0.63**	0.07*	–		
Public contact	0.60**	0.07*	0.17**	–	
Work contact	0.35**	0.14**	0.09*	0.21**	–

* $p < 0.01$. ** $p < 0.001$.

‘would be dangerous to be around’ and whether the character should be ‘watched closely by the local police.’ Participants responded to these items on a four-point scale (0 = definitely yes, 1 = probably yes, 2 = probably no, 3 = definitely no) with a mean of 0.97 (SD = 0.56). Answers to the items were averaged to provide a mean vignette dangerousness score with higher scores indicating greater perceived dangerousness. As one might expect, vignette dangerousness was significantly correlated with general dangerousness ($r = 0.34$, $p < 0.001$, 2-tailed).

Vignette social distance

Respondents were asked four questions about their willingness to have the character be a part of their workplace, community, schools, and social network ($\alpha = 0.84$). Sample questions included: ‘How willing would you be to hire (vignette character) to do odd jobs for you?’ and ‘How willing would you be to have (vignette character) as a close friend?’ Respondents indicated their degree of willingness on a 4-point scale (0 = definitely willing, 1 = probably willing, 2 = probably unwilling, 3 = definitely unwilling). Answers were averaged to provide a mean vignette

social distance score with a mean of 2.18 (SD = 0.70), higher scores indicating greater desired social distance. Vignette social distance was significantly correlated with both general perceived dangerousness ($r = 0.21$, $p < 0.001$, 2-tailed) and vignette dangerousness ($r = 0.57$, $p < 0.001$, 2-tailed).

Potential confounders

Three potential confounders were included in the analyses. These had not been examined in previous research. They were selected because they reflect aspects of personality that appeared potentially related to the target variables. Controlling for these variables provided an opportunity to demonstrate that the positive impact of contact on stigmatizing attitudes cannot be fully explained by pre-existing positive attitudes or beliefs, as has been demonstrated in other studies (e.g., Corrigan *et al.*, 2001; Desforges *et al.*, 1991; Link & Cullen, 1986).

Political conservatism

Political conservatism was included because past research has linked conservative political views to prejudice and discrimination (e.g., Anant, 1975; Gaertner, 1973; Lambert & Chasteen, 1997). It was measured in the following question:

‘How would you describe yourself politically—would you say you are very conservative, somewhat conservative, moderate, somewhat liberal, or very liberal?’ A higher score on this item indicated a more liberal political stance (see Table 1).

Social desirability

Social desirability was controlled for here because previous research has indicated that people high on social desirability are less likely to endorse prejudiced statements about minority groups (e.g., Carver *et al.*, 1978; Cobb, 2002; Ling, 2002). Modeled on the Crowne-Marlow scale (Crowne & Marlow, 1964), a social desirability scale ($\alpha = 0.67$) consisting of six true-false items was developed for this study with items specific to the topic of homelessness. Sample questions included: ‘You would always go out of your way to help a homeless person’ and ‘You might feel annoyed if a homeless person kept asking you for money’ (reverse scored). Scores were averaged to yield a mean social desirability score with a mean of 1.34 ($SD = 0.28$), higher scores indicating greater social desirability. This scale has not been validated as a measure of social desirability and draws its interpretation as such only from its correspondence to Crowne–Marlow. Still, the scale gives us some means of controlling for the powerful tendency to report only positive sentiments about people with problems. As such, we will have more confidence in the contact–stigma association if that association survives a control for our social desirability score.

Anomia

Anomia, defined as distance and alienation from others (Srole, 1956), was included because researchers have found a positive association between anomia

and prejudice in past studies (Billiet, 1995; Eckhart & Durand, 1975; McDill, 1961). The anomia scale (Srole, 1956) consisted of five items, including ‘These days a person doesn’t really know who he or she can count on’ and ‘It is hard to figure out who you can really trust these days’ ($\alpha = 0.75$). Respondents indicated their endorsement of each item on a four-point scale (definitely true, probably true, probably false, definitely false). Responses to the five items were averaged to calculate a mean anomia score with a mean of 1.65 ($SD = 0.71$), higher scores indicating greater alienation.

Demographics

Respondents ranged in age from 18 to 90 ($M = 40.98$, $SD = 15.78$). Fifty-seven per cent of the sample was female. The vast majority of participants had at least completed high school (85.4%), and almost half of the respondents (49.3%) reported an annual income under \$30 000. The vast majority of respondents self-identified as White (82.7%), and a significant, though small, proportion of respondents self-identified as Black (10.4%). Unfortunately, so few respondents endorsed the other ethnicity categories (i.e., Hispanic, Asian–Pacific Islander, American Indian, and ‘other’) that the cell sizes were too small to include these ethnicity groups individually in the analyses. As a result, two race/ethnicity dummy variables were included: Black (Black = 1, White or Other ethnicity = 0) and Other (Other ethnicity = 1, Black or White = 0) ethnicity.

Results

Impact of total contact

To test the hypothesis that the amount of overall contact predicts stigmatizing

attitudes, measures of dangerousness and social distance were regressed on total contact. In the second model, demographic variables (i.e., gender, age, education, ethnicity, income, and education) were added, and in Model 3, political conservatism, social desirability, and anomia were added. For analyses predicting vignette dangerousness and social distance, Model 4 also included vignette variables (i.e., veteran status, criminal record, and substance abuse history). Results for the first model and final model (i.e., Model 3 for general dangerousness and Model 4 for vignette measures) are reported here. The beta weights for all variables in the final model regression analyses can be found in Table 4.

Total contact predicted general dangerousness when entered alone ($\beta = -0.23$, $p < 0.001$; $r^2 = 0.05$) and also when political conservatism, social desirability, and anomia were added in Model 3 ($\beta = -0.15$, $p < 0.001$; $r^2 = 0.26$). A similar pattern was evident for vignette dangerousness (Model 1: $\beta = -0.14$, $p < 0.01$, $r^2 = 0.02$; Model 4: $\beta = -0.13$, $p < 0.01$, $r^2 = 0.17$) and vignette social distance (Model 1: $\beta = -0.15$, $p < 0.001$, $r^2 = 0.02$; Model 4: $\beta = -0.15$, $p < 0.001$, $r^2 = 0.20$).

Impact of different contact types

To test the hypothesis that each of four contact types was associated with more positive attitudes, general dangerousness, vignette dangerousness, and vignette social distance were regressed on family, friend/spouse, public, and work contact individually. The models were parallel to those used in the total contact analyses. As above, the results for the first and full models are reported here. The beta weights associated with each contact type

for the first and full models can be found in Table 5.

Family contact

Family contact alone predicted general dangerousness in Model 1 ($\beta = -0.08$, $p < 0.01$; $r^2 = 0.01$) and remained a significant predictor with the inclusion of sociodemographics, political conservatism, social desirability, and anomia in Model 3 ($\beta = -0.05$, $p < 0.05$; $r^2 = 0.24$). A similar pattern was found for vignette dangerousness as well (Model 1: $\beta = -0.12$, $p < 0.01$, $r^2 = 0.01$; Model 4: $\beta = -0.11$, $p < 0.01$, $r^2 = 0.17$). However, family contact was only marginally predictive of vignette social distance (Model 1: $\beta = -0.09$, $p < 0.05$, $r^2 = 0.01$; Model 4: $\beta = -0.07$, $p = 0.05$, $r^2 = 0.19$); the association did not reach statistical significance when confounder and vignette variables were added.

Friend/spouse contact

Friend/spouse contact alone significantly predicted general dangerousness (Model 1: $\beta = -0.18$, $p < 0.001$; $r^2 = 0.03$) and remained a significant predictor in the full model ($\beta = -0.11$, $p < 0.001$; $R^2 = 0.25$). Friend/spouse contact was a poor predictor of vignette dangerousness (Model 1: $\beta = -0.06$, $p = 0.13$, $r^2 = 0.00$; Model 4: $\beta = -0.06$, $p = 0.15$, $r^2 = 0.16$). Parallel results were obtained in the models predicting vignette social distance (Model 1: $\beta = -0.07$, $p = 0.09$, $r^2 = 0.01$; Model 4: $\beta = -0.06$, $p = 0.11$, $r^2 = 0.19$). Although the friend/spouse contact regression coefficients did not reach statistical significance in either the vignette dangerousness or social distance analyses, the coefficients were in the hypothesized direction.

Table 4: Beta weights for the final model total contact analyses of each dependent variable

	General dangerousness	Vignette dangerousness	Vignette social distance
Total contact	-0.15***	-0.13**	-0.15***
Demographics			
Gender	0.01	0.16***	0.10*
Age	0.11***	0.13**	0.17***
Black ethnicity	0.13***	-0.03	-0.03
Other ethnicity	0.14***	0.03	-0.01
Education	-0.14***	-0.08	0.02
Income	-0.05	-0.05	0.09*
Potential confounders			
Political conservatism	-0.14***	-0.12**	-0.12**
Social desirability	-0.12***	-0.22***	-0.23***
Anomia	0.27***	0.07	0.04
Vignette variables			
Veteran		0.10**	0.05
Criminal record		0.19***	0.19***
Substance abuse		0.13**	0.20***
r^2	0.26	0.17	0.20

Note. Statistics presented in this table are beta weights from Model 3 for General dangerousness and Model 4 for Vignette dangerousness and Vignette social distance. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Public contact

Public contact alone was a significant predictor of general dangerousness ($\beta = -0.08$, $p < 0.01$; $r^2 = 0.01$), which it remained when sociodemographics, political conservatism, social desirability, and anomia ($\beta = -0.07$, $p < 0.01$; $r^2 = 0.24$) were added to the equation. A similar pattern was evident for vignette dangerousness (Model 1: $\beta = -0.10$, $p < 0.05$, $r^2 = 0.01$; Model 4: $\beta = -0.09$, $p < 0.05$, $r^2 = 0.17$), but the association did not hold for vignette social distance (Model 1: $\beta = -0.01$, $p = 0.75$, $r^2 = 0.00$; Model 4: $\beta = 0.02$, $p = 0.63$, $r^2 = 0.18$). In fact, over the four models, the public contact regression

coefficients shifted from barely negative to positive.

Work contact

Like all other contact variables examined here, work contact predicted general dangerousness in Model 1 ($\beta = -0.17$, $p < 0.001$; $r^2 = 0.03$) and remained a significant predictor in the full model ($\beta = -0.10$, $p < 0.001$; $r^2 = 0.25$). While work contact did not significantly predict vignette dangerousness in any model (Model 1: $\beta = -0.06$, $p = 0.13$, $r^2 = 0.00$; Model 4: $\beta = -0.05$, $p = 0.20$, $r^2 = 0.16$), it was consistently predictive of vignette social distance (Model 1: $\beta = -0.12$, $p < 0.01$, $r^2 = 0.01$; Model 4: $\beta = -0.12$, $p < 0.01$, $r^2 = 0.20$).

Table 5: Beta weights and r^2 s for contact types in the first and full model of all regression analyses

	General dangerousness		Vignette dangerousness		Vignette social distance	
	Contact alone	With all controls	Contact alone	With all controls	Contact alone	With all controls
Total contact	β -0.23***	β -0.15***	β -0.14**	β -0.13**	β -0.15***	β -0.15***
	r^2 0.05	r^2 0.26	r^2 0.02	r^2 0.17	r^2 0.02	r^2 0.20
Family contact	β -0.08**	β -0.05*	β -0.12**	β -0.11**	β -0.09*	β -0.07
	r^2 0.01	r^2 0.24	r^2 0.01	r^2 0.17	r^2 0.01	r^2 0.19
Friend contact	β -0.18***	β -0.11***	β -0.06	β -0.06	β -0.07	β -0.06
	r^2 0.03	r^2 0.25	r^2 0.00	r^2 0.16	r^2 0.01	r^2 0.19
Public contact	β -0.08**	β -0.07**	β -0.10*	β -0.09*	β -0.01	β 0.02
	r^2 0.01	r^2 0.24	r^2 0.01	r^2 0.17	r^2 0.00	r^2 0.18
Work contact	β -0.17***	β -0.10***	β -0.06	β -0.05	β -0.12**	β -0.12**
	r^2 0.03	r^2 0.25	r^2 0.00	r^2 0.16	r^2 0.01	r^2 0.20

Note. ‘With all controls’ for the General dangerousness analyses includes all demographics and potential confounders. ‘With all controls’ for Vignette dangerousness and Vignette social distance analyses includes all demographics, potential confounders, and vignette variables. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Impact of Control Variables

Demographic variables

The pattern of relationships between the demographic variables and the three dependent variables (i.e., general dangerousness, vignette dangerousness, and vignette social distance) was the same in the analyses for both total contact and the four contact types. A summary of beta weights for the demographic variables can be found in Table 4. For all general dangerousness analyses, younger age and higher education level were consistent predictors of lower perceived dangerousness across contact variables, while minority ethnic status predicted higher dangerousness. Age was the most consistent predictor of vignette dangerousness and vignette social distance across contact types. For all analyses of vignette dangerousness, younger age and male gender were associated with lower levels of perceived dangerousness. For all analyses of vignette social distance, younger age and lower income predicted lower vignette social distance.

Potential confounders

The relationships between the potential confounders and dependent variables also held across total contact and the four contact types. A summary of beta weights for the potential confounder variables can be found in Table 4. While more liberal politics, higher social desirability, and lower anomia were associated with lower levels of general dangerousness, only political conservatism and social desirability predicted the vignette measures. Across all analyses, respondents who endorsed liberal politics and higher social desirability perceived the vignette character as less dangerous and preferred less social distance from the vignette character.

Vignette variables

The vignette variables were predictive of the dependent variables in the same pattern for analyses of total contact and the four contact types. A summary of beta weights for the vignette variables can be found in Table 4. Vignette characters described as veterans, with a criminal record, or a history of substance abuse were perceived as more dangerous. However, respondents indicated a greater desire for social distance only when the vignette character was described as having a criminal record or a history of substance abuse.

Discussion

We tested two general hypotheses about the association between contact and stigmatizing attitudes. First, it was hypothesized that overall contact, regardless of type, would be predictive of general dangerousness, vignette dangerousness, and vignette social distance. Second, we hypothesized that this overall effect of contact would generalize to four specific contact types (i.e., family, friend/spouse, public, and work).

We found strong support for our first hypothesis. Total contact was a significant predictor of general dangerousness, even when controlling for demographic, confounder, and vignette variables. This association extended to the vignette measures of stigma as well. As total contact increased, the perceived dangerousness and desired social distance from the vignette character decreased. As hypothesized, people who had had more overall contact, regardless of type, perceived people with mental illnesses in general as less dangerous, viewed the vignette character as less dangerous, and

reported less desired social distance from the vignette character.

Our second hypothesis was partially supported. All four contact types were significant predictors of general dangerousness. Respondents with any type of contact experience perceived people with mental illnesses in general as less dangerous. However, the contact types did not consistently predict the vignette stigma measures. Family and public contact were significant predictors of vignette dangerousness across all four models, and work contact was consistently predictive of vignette social distance (family contact was marginally significant). Friend/spouse contact predicted neither. People who had a family history of psychiatric hospitalization or who had experience seeing people who appear to be mentally ill in public viewed the vignette character as less dangerous. People who had work experience in mental health or a family history of psychiatric hospitalization (marginally) desired less social distance from the vignette character. Counter to our expectations, these findings indicate that the type, as well as the amount, of contact may be important in reducing stigmatizing views.

The meaning of the pattern of findings across contact types is unclear. It may be that our analyses lacked the power to find a significant relationship between each contact type and the various stigma measures and that every contact type is meaningfully related to stigma. It is also possible that some contact types are more strongly related to aspects of stigma than others. For example work contact may foster the development of both professional and personal relationships with people with mental illness, enabling individuals to see people with

mental illness functioning capably in different social roles and thereby reducing the desire for social distance. A conclusion cannot be drawn on the basis of our findings. Replication and extension of our findings are needed.

It is interesting to note that the four contact types, each of which was measured with only one question, significantly predicted stigmatizing attitudes (although not consistently) without accounting for specific qualities of the contact or relationship. It seems likely that a difficult or distant family relationship, a troubled marriage to a person with mental illness, a threatening public encounter with a stranger who appears mentally ill, or negative experiences in the workplace would have no impact or even a negative one upon stigmatizing attitudes. It would be useful to determine how including quality of contact and quality of relationship variables may change, specify, or deepen the contact–stigma relationship. Given the consistent, though statistically non-significant, direction of the beta weights across analyses found here, it is possible that including specific aspects of contact experiences would allow all contact types to emerge as significant predictors of stigmatizing attitudes. This finding will need to be replicated and explored in future research.

Limitations

The primary limitations of this study stem from adapting the original data set to this study's purpose. Because the data are from a study of homelessness, the measures specifically related to mental illness are not as comprehensive as desired. While the contact measure covers many types of contact, it does not include all relevant types (e.g., media

contacts) or more specific questions about the contacts (e.g., quality, length, closeness). It would also have been preferable if the vignette dangerousness and social distance measures had been more extensive to allow for a more thorough exploration of their interrelationship and relationships with contact. Also, while the overall sample size was large, the subsample of respondents who received a mental illness vignette was smaller, which commensurately weakened our ability to detect contact effects on the vignette measures. These limitations point to the need for additional research to replicate and extend the findings.

Another potential limitation of the study's findings is the unknown impact of homelessness itself as a phantom confounder variable. Almost all of the questions in the original survey were on homelessness, and it is not known how people's views on homelessness may have subtly impacted their responses to the mental illness questions. Homelessness as a variable was omnipresent, so it could not be controlled for in analyses. This was particularly troublesome in the vignette measures in that all of the vignette characters were homeless. The unknown impact of the homelessness variable was a more concrete problem for the social desirability measure, which is comprised entirely of statements about homelessness. Social desirability is a trait that is not typically characterized as content-specific. However, the emphasis on homelessness may have skewed the social desirability findings in unknown ways.

Finally, it should also be noted that while the findings discussed here were statistically significant, the amount of variance explained by contact alone in

each statistically significant equation was relatively small, ranging from only 1–5%. The pattern of findings is consistent and statistically significant, but the relatively small explained variance indicates the need for additional research in this area, using more extensive measures of contact experiences, to clarify the role of contact in reducing stigma.

Implications for interventions

This study's findings have a number of implications for stigma reduction interventions. The positive impact of family and public contact on perceptions of dangerousness is important because it suggests that people do not have to seek out contact intentionally, as in the case of people who have a child or parent with mental illness or who see strangers with mental illness in public, for it to reduce stigmatizing attitudes. Stigma reduction interventions that facilitate contact with people with mental illnesses (e.g., televised public service announcements or school-wide assemblies) may be effective in the general public even if they are not intentionally sought out by participants. The specific circumstances under which unintentional contact is beneficial are not yet known, and research on the specific aspects of unintentional contact that are important for attitude change will be important in designing interventions to include effective contact experiences.

Although its exact nature is unclear, the relationship between work contact and social distance found here also has interesting implications for interventions. If education and training are responsible in part for the relationship, accurate and empathetic information about mental illnesses and the struggles of people who have them may be a useful intervention component. Although the litera-

ture has been mixed, some research has already pointed to the potential benefits of this type of intervention (Holmes *et al.*, 1999; Corrigan *et al.*, 2001).

A different intervention approach is suggested if work contact is viewed instead as a process through which a collaborative effort between the service provider and mental health consumer takes place. Work contact may share similarities with the type of cooperative learning task used in Desforges *et al.*'s (1991) study. If this is the case, cooperative work or learning tasks may also be a potentially useful component of stigma reduction interventions. It is unlikely that any one intervention will effectively reduce stigmatizing attitudes in everyone. However, a combination of personal contact, thoughtful education, and cooperative contact interventions may make a significant difference in people's views.

Conclusion

While this study's limitations potentially constrain the interpretation of our findings, the study makes several contributions to the discussion of the contact-attitude link. The large nationally representative American sample increases the generalizability of the findings, giving strong support for the positive impact of contact upon stigmatizing attitudes. By including a more comprehensive range of contact types, we demonstrated that the overall amount of contact, across a variety of types, is meaningfully related to attitudes. This study builds upon previous research in its use of a more complex operational definition of stigma, which enabled us to demonstrate that contact reduces both perceived dangerousness

and desired social distance and that contact's effects are evident in both general and vignette measures of stigma. While more research is needed to clarify and extend these findings, this study provides strong evidence for the importance of different contact types in reducing stigmatizing attitudes and the potential usefulness of incorporating contact into any stigma reduction intervention.

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